



# COAL AGE



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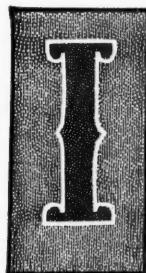
No. 8



Widows and orphans, wives and mothers know me  
and fear my power.



I crave your mine and plant  
as a sacrifice.



## AM YOUR ENEMY.

I take toll of your savings, your health, your lives.

I steal the livelihood of your wives and children.  
I seek your home and happiness to destroy them.

I crave your property as a sacrifice.

I spare none—neither the old nor the young, neither the rich nor the poor, neither the strong nor the weak. Widows and orphans, wives and mothers know me and fear my power.

I lurk in unseen places; I walk boldly in the sight of men. I stalk throughout the mine. I am in the breakers, on crossings, in the entries, in the farthest heading.

I am the companion of motormen, drivers, timbermen. I betray foremen and gray-haired miners.

You hate me, yet you seek me.

You are warned against me, yet you heed not.

I give nothing; I take much. I *destroy*; I MAIM; I KILL.

## I am Carelessness!

*Suggested by George N. Lantz*

## Mining the Mammoth Vein With Steam Shovels

By D. C. HELMS\*

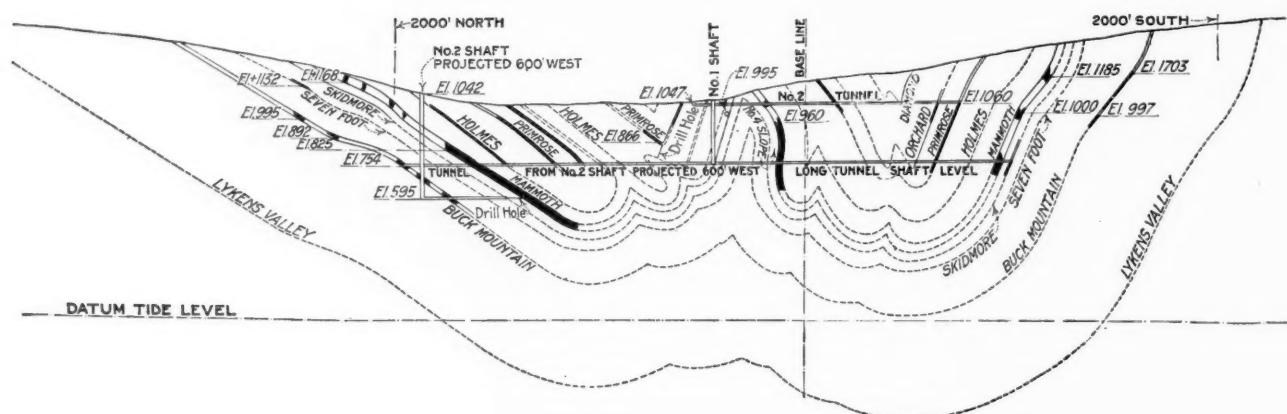
**SYNOPSIS**—A description of the method pursued at the Nesquehoning colliery whereby a considerable amount of pillar coal as well as much virgin fuel was secured.

As is well known the introduction of the steam shovel has made it possible to remove as high as 200 ft. of overburden from coal mined by stripping. It has in the past been the usual method when the coal measure is stripped to mine the coal by hand. This method is being gradually supplanted by the use of the steam shovel for loading. This procedure has many advantages over hand mining, especially if there is an opportunity to carry the coal to the breaker by a surface route. Not only is a steam shovel able to secure more coal in a given time, but it is quite evident that the yield per ton

While the proving of the fault was taking place, chutes were driven from the gangway up the pitch to find how much coal had been taken out when the original gangway was driven. These chutes showed that about 90 ft. up the pitch had been worked previously, but that a chain pillar of 100 ft., as well as the large area of the coal lying over the saddle, was intact.

There was little doubt that a large percentage of this chain pillar could be obtained from the inside, but the problem arose as to the mining of the coal lying over the saddle, of which there was a large amount. It was finally decided to remove the cover from above the saddle and the south dip of the bed as far east as it was possible to reach with the chutes from the south dip gangway.

This stripping was started in the fall of 1912, the work being done by two hand gangs and continued until the beginning of the year 1914. A large body of material



two dips. There was at least 40 vertical feet of coal lying over the saddle, and it is plain to be seen that practically all of it as far east as it is possible to reach from the chute had been taken out.

Having obtained all of the available coal in the hand stripping, the question arose as to the different methods whereby it would be possible to secure the coal lying further east. The spoon chute from the face of the gangway proved beyond all doubt that the pitch of the rise of the fault, if this remained the same, was sufficient to carry the coal at least 1,000 ft. farther east; but this chute was hardly enough information upon which to warrant stripping, and although it seemed probable that the coal was there, yet before any serious thought of stripping could be entertained, the amount of this coal that it would be possible to secure must be determined.

In considering a stripping proposition of a large size the bed to be stripped should be thoroughly proved, and although information from underground as well as surface indications are extremely useful, yet the value of drilling can hardly be overestimated, as prospecting by steam shovel often proves extremely costly.

Bearing this in mind, 14 drill holes on four different lines were put down to determine the rise of the fault and also the amount of coal lying therein. The first row of holes was on the line of No. 1 tunnel. By applying the dips shown on the cores which were taken out of each hole and connecting up the different strata cut, a section was constructed. The elevation where the vein pinches out is 1,110 ft., while that where the pinch was struck in No. 2 tunnel gangway was 1,060 ft., so it is evident that the fault had risen 50 ft. in 535 ft. horizontally, which is the distance between the face of No. 2 tunnel gangway and the first line of holes. The second row of drill holes was placed 375 ft. farther east. Between the first and second lines of holes, the fault rose 70 ft.; and what was more peculiar, the vein took another turn and formed a basin 110 ft. wide. The third row of holes, 350 ft. east of the second, proved that though the basin was still there, it had risen 60 ft. and was only 70 ft. wide, or 40 ft. less in width than the basin on the second row of bore holes.

On this section the basin was found to be badly split up. These splits were divided by seams of sandstone and slate, which gave the contractor as well as the company considerable annoyance at a later date. The fourth row



FIG. 2. THE HAND CUT AFTER MINING HAD BEEN STOPPED, LOOKING EAST

of drill holes, 300 ft. east of the third, when put down close to the crop, fell on the north dip and cut nothing but small veins of coal in a pinch. This was taken as a good reason to suppose that the basin on the south dip had spooned or merged with the north dip into one bed.

#### STRIPPING LIMITS WERE DETERMINED

When all drilling had been finished and cross-sections constructed, limits for the proposed stripping were determined, these limits being set for a vertical cut owing to the fact that it is practically impossible for a steam shovel to cut a side slope. These vertical cuts were taken at a sufficient distance from the bed to allow the bank to slope naturally.

By doing this it was possible to obtain an approximate estimate of the amount of material to be removed. At the same time a longitudinal section was constructed east and west. This showed the rise of the fault where it was struck in No. 2 tunnel gangway, passing through the different lines of drill holes to the point where it either pinches or merges with the north dip of the bed. It also gave some idea of the length of the fault east of the face of No. 2 tunnel gangway a distance of 1,500 ft. and the depth of the coal. With this section in conjunction with the drill hole section, the amount of coal that it was possible to secure was calculated.

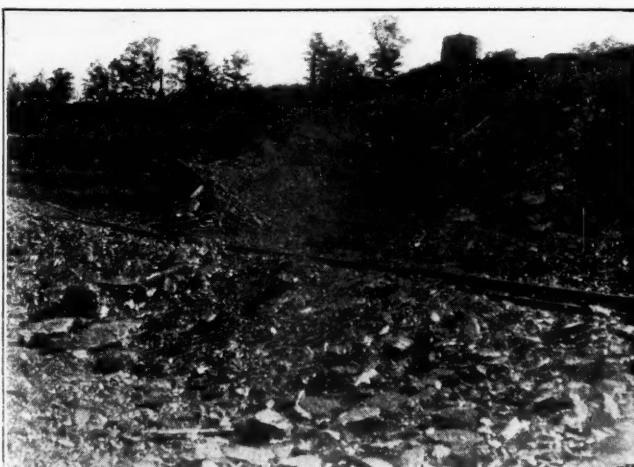


FIG. 3. THE SUDDEN RISE OF THE COAL



FIG. 4. TRACKS LEADING OUT OF STRIP PIT

A comparison of the estimates showing the number of cubic yards of excavation with the number of tons of coal it was possible to secure showed that to remove the cover would be a paying proposition. Accordingly, in March, 1914, one Marion steam shovel (Model 60) commenced work. The opening cut was made to the north. This was done for two reasons—first, to secure a 9-ft. bank to work east and, second, to make a road to the dump that would be the most advantageous. When it is realized that more than 120,000 cu.yd. of rock and earth which were 35 ft. above and 20 ft. below this level were taken out over this road, it is evident its position was well placed.

#### TWO SHOVELS WERE EMPLOYED

The 60-ton shovel worked for one month, when it was reinforced by a small machine of the same type (Model 20). The two shovels worked together for over a year, the 20-ton machine doing mostly cleaning while the 60-ton shovel worked in rock. This rock proved to be an expensive proposition for the contractor, for during that period five drilling machines were used to drill the

saddle, and the cut in the rock along the top of the coal was much more; in fact, this rock cut from the sudden rise west was at all times 35 ft. and the majority of the time 45 ft. in depth. The rock cut shown to the right is slightly over 45 ft.

In removing the rock from above the coal it was the intention when figuring the original slope to leave sufficient room for a 10- to 15-ft. cut below the top of the coal. This cut could only go east as far as the sudden rise, for from there on the rock lay on the basin.

While working east of the sudden rise on this cut, which was about 50 ft. below the surface, the shovel instead of cutting into the previous vertical bank left a berm or bench of 15 ft. for the purpose of carrying any material that might break away from the high bank. A grade toward the west was necessary on account of the shovel. From the bottom of this grade this cut will have to be continued west to get the required depth below the top of the coal.

After leaving this cut the large shovel was finished with its work, as the smaller machine was doing all the cleaning. While this was taking place, however, the



FIG. 5. TRACK ARRANGEMENT AT FOOT OF PLANE



FIG. 6. EASTERN END OF STRIPPING

blasting holes. Three of these drills were of the churn type, while the other two were portable steam tripod machines.

As the stripping progressed and the cut went deeper the indications showed that the longitudinal section constructed for coal calculations did not quite represent actual conditions, though this was the fault of no one. In Fig. 6 it is seen that the rise of the fault was gradual, but when this was uncovered, it was found that between the first and second line of drill holes the coal took a sudden jump, attaining a pitch of about 70 deg., thereby overcoming a large portion of the difference in elevation in 50 horizontal feet. This of course made a change in the coal calculation, but fortunately it was in favor of the job. Fig. 3, looking east, at the right shows the sudden rise of the coal, which jumped 25 ft. in a horizontal distance of 50 ft. From this picture some idea can be gained as to the difference in the amount of material that had to be excavated before reaching the coal. The upper level is the foot of the clay on top of the coal bed. From here east only 20 to 25 ft. of surface was removed before reaching the fuel, while west of the sudden rise about 30 ft. of cover was excavated directly over the

question arose as to be different methods available for securing the coal, and after many methods had been considered it was decided to remove this material by steam shovel, paying the contractor by the cubic yard.

Two ways of handling the cars loaded by the shovel were considered—first, that the coal be dumped down one of the chutes in the old hand cut and, second, that a plane be put in and the coal taken to the breaker by a surface route. The last scheme was the one adopted, and before the large shovel was taken away it cut a grade, shown in Fig. 4, south of the old hand cut which connected the stripping with the tracks at No. 1 boiler house by a plane.

This picture shows the grade cut, the top of the plane and on the left the dump which had to be built when this grade cut out the opening roadway. Fig. 5 shows the track arrangement at the bottom of the plane. The cars to the left are loaded, having just been let down; the cars to right are empty, ready to be hoisted. These tracks are graded so that the loads run away from the bottom while the empties run to the bottom. The empty track to the right is connected with No. 1 boiler-house tracks, which lead to the breaker. This plane has proved to be a good investment, for whenever the steam shovel is

in good ground, no difficulty is encountered in handling 200 cars a day.

The cut was about the same width (130 ft.) until the sudden rise of coal was reached. As the cut goes further east it narrows, until at the extreme eastern end a width of 40 ft. is attained. From here east no trace can be found of the south dip, until McGorry's counter is reached, which is a distance of 1,000 ft.

#### ROCK SEAMS HAD TO BE BLASTED

I have mentioned before that on the third line of drill holes the vein was found to be split up. This caused the shovel a great deal of annoyance, until a tripod steam drill was kept ahead of it in order to keep the different seams of rock and slate broken up. These seams of slate vary from 1 to 5 ft. in thickness; and when well shot up, the shovel encounters no difficulty in separating the slate from the coal. This may seem unlikely, but it is being done with good results. It is nothing uncommon for the shovel to load 60 cars of rock and 60 cars of coal in one day from the same cut.

Fig. 6 gives an idea as to the amount of coal that has been excavated at the eastern end of the job, and also the different levels upon which the shovel has worked previously. To the left the sudden rise of coal can be seen from a different angle. The top level is the top of the coal, lying about 23 ft. below the surface. The difference of elevation between the top of the coal and the level upon which the shovel is seen is about 27 ft., all of which is coal of the best quality.

When the proposition of stripping this vein was first considered, it was the pillars lying between the crop falls on the north dip which gave rise to the belief that the coal lying over the saddle had not been taken out; so it must not be thought that these pillars were allowed to remain in, once the mining was started. When the stripping was first opened, all the material possible, besides the slate, which came out of the eastern end of the job, was dumped into the crop falls which separated the pillars. As the cut went deeper it was necessary to remove some of this same material, which meant that the contractor was required to handle it a second time; but in mining, the small shovel was able to use the remainder as a base, and in this way it was possible to reach as far north as the coal lay.

By these different methods it has been possible for the shovel to supply coal to the breaker almost continually except when it is removing material that had been dumped into the north dip crop falls, although it is only fair to say that whenever the shovel reaches the seams of slate at the eastern end and the day's output of coal decreases, the 50-ft. plane is not popular at the breaker.

**The Sizes of All Wires** are ordinarily expressed in certain gage numbers chosen arbitrarily. There are, unfortunately, several independent gage systems, and it is necessary in each case to specify the particular wire gage used. Though the gage numbers have the advantage of enabling manufacturers to carry wires in stock from which purchasers may choose with a reasonable assurance of quick delivery, there is nevertheless a tendency to do away with all gage-numbering methods, and to distinguish electrical wires by their diameters expressed in mils.



BROTHERS ONCE, BUT NOW—

## Permissible Coal Cutters

**SYNOPSIS**—The Sullivan Machinery Co. has designed and built motor casings and protective devices for use in connection with its "Ironclad" coal cutters, which have been satisfactorily tested by the Bureau of Mines at the Pittsburgh Experiment Station. These machines now have the approval of the Government as "permissible, explosion-proof machines" for use in gassy mines.

The increasing use of electricity in coal mines for haulage, pumping, cutting coal, etc., and the advances in efficiency and convenience which electrical apparatus has made for these purposes have caused a demand for motors that may be used in mines where gas is present and in which dust or gas explosions may be caused by an electric spark.

Manufacturers have given much study to this problem, and a large amount of work has also been done along this line by the United States Bureau of Mines in its efforts

and that controller contacts, leads, etc., be inside the machine instead of outside. In the process of ventilation, air from the mine is drawn into the motor casing by a fan, so that a circulation of cooling air is kept up about the motor. If this air contains dust or gas in an explosive mixture, it may be readily ignited by a spark from the motor, within the casing, and unless adequate protective devices are furnished the flame may be carried outside the machine into the mine and a dangerous general explosion ensue.

In the tests made in the experimental gallery of the Pittsburgh Experiment Station, the motor casing of the "Ironclad" machine was filled with and surrounded by the most explosive mixture obtainable of Pittsburgh natural gas and air. Other tests were made with varying amounts of gas in the explosive mixture and with coal dust sifted into the protective devices or within the motor casing. The motor was run at its rated speed in these mixtures and the air and gas in the casing ignited by means of a spark plug. The point of ignition giving the greatest pressure

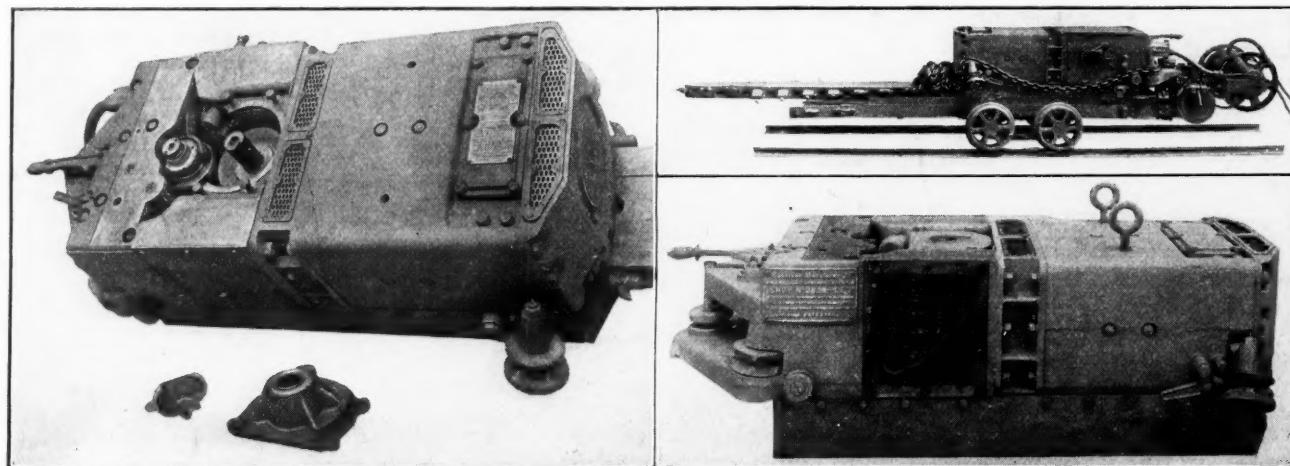


FIG. 1. THREE VIEWS OF THE PERMISSIBLE IRONCLAD UNDERCUTTER

to provide for safer working conditions in the mines of the country.

In 1912 motors of various types were tested by the Bureau of Mines at the Pittsburgh Experiment Station, with a view to determining the requirements for permissibility as well as the suitability of the motor tested for the purpose in mind. These investigations were reported in Bureau of Mines Bulletin No. 46 by H. H. Clark. As a result of these preliminary tests no motors were found entitled to the Government approval as "explosion-proof."

A few months after the first investigation was concluded application was received by the Bureau of Mines to test mining machine motors of the Sullivan "Ironclad" type. As a result of the tests then made the Sullivan Machinery Co. has been granted approvals Nos. 100 and 101 on its 250-volt and 500-volt direct-current machines. The manufacturer is therefore entitled to place on each machine of this particular type and construction the combined Government approval and caution plate illustrated by Fig. 2.

To meet Government requirements it is not merely necessary that all outside connections be carefully insulated

in the casing was also determined by test, and trials were made by igniting the mixture while under that pressure. In the course of these trials the motor and rheostat were tested 60 times, the cable reel 25 times and the fuse in the controller 15 times.

As a result of these tests no punctures of the motor casing or protective devices or of the cable reel were observed; that is, no flames from the internal ignition escaped to the outside air. A maximum pressure of 126 lb. per sq.in. was obtained in the rheostat chamber, 74.6 lb. per sq.in. in the motor casing and 35 lb. per sq.in. in the slip-ring compartment of the cable reel. The fuse tests were made by connecting the fuse across the busbar of a 200-kw. 225-volt direct-current generator in series with a resistance equivalent to a circuit of No. 0000 B. & S. gage wire 530 ft. in length (one way). The fuse opened the circuit promptly, with practically no noise and absolutely no evidence of sparks or flames upon the breaking of contact.

The test as a whole proved that the protection of the motor, starting rheostat and cable reel was adequate at the time of testing. Upon the requirement of the bureau, a factor of safety was secured by changing the construc-

tion so as to reduce the maximum pressure from 126 lb. per sq.in. to less than 50 lb. in any part.

The summary of the tests is given in the table herewith.

TESTS OF MOTOR AND STARTING RHEOSTAT

Number of Tests	Percentage of gas or dust	Cover Condition	Puncture*	External Flames	Dangerous After-burning†
13	8.6 gas	Seated	None	None	None
13	8.6 gas	Raised	None	None	None
10	8.6 dust	Raised	None	None	None
4	8.6 dust	Raised	None	None	None
10	7.0 dust	Raised	None	None	None
10	7.0 dust	Raised	None	None	None

TESTS OF CABLE REEL

1	8.6 gas	None	None	None
9	8.6 dust	None	None	None
5	7.0 dust	None	None	None
10	7.0 dust	None	None	None

\*The term puncture means the ignition of gaseous mixtures surrounding a motor casing by flames discharged from it. †The term afterburning is applied to the combustion, immediately after an explosion within an explosion-proof casing, of a gaseous mixture that was not within the casing at the time of the explosion, but was drawn in subsequently while the products of the explosion were cooling.

Inspection of the mechanism of the machine indicated that its construction conformed to all of the published requirements of the bureau.

MECHANICAL ARRANGEMENTS

The motors used on the machines tested were, as stated, of two voltages—250 and 500. They were built especially for service on Sullivan "Ironclads" by the General Electric Co. and are of the CY-24-B pattern, compound wound and designed to deliver 30 hp. at 1,130 r.p.m. for one hour without exceeding a temperature rise of 75° C.

The motor is situated in the front half of the armor-plate body or casing of the machine, while the gears, friction and other mechanical parts are housed in a rear compartment, as are also the rheostat and controller. The motor-casing protective devices are of the plate type, consisting of a large number of flat rings or thin plates, spaced close together. These rings form a collar made to fit closely the openings, one at each end of the casing, which surround the armature shaft bearings. The air or flame, in case of internal ignition, is forced to travel in a circuitous course through the baffle plates in order to escape to the air of the mine. In the journey it is cooled to such a low temperature and reduced to such a low pressure that the heat necessary to produce an explosion in gas outside of the machine is removed. The plates are protected by strong noncorrosive metallic gratings, or in newer designs by downward-looking openings on the corners of the casing. The only unprotected opening in the casing is one over the commutator, which is normally closed by a solid cover, tightly bolted to the motor frame.

STARTING RHEOSTAT AND FUSE

The casing of the starting rheostat is made part of the machine frame. The controller plate is mounted on one side of the machine and the resistances on the other. They are, however, in the same box, and all leads between them are completely inclosed and protected. There is a cover plate over the resistances and one over the controller. Both cover plates are made with broad flanges and are fastened to the machine frame with stud bolts. The electrical connection with the trailing cable passes through the casing of the rheostat in the form of studs insulated with fiber washers and bushings.

There is mounted in the shaft of the controller a totally inclosed refillable fuse, having practically the dimensions specified for 250-volt 100-amp. fuses by the National Electric Code. The fuse is so placed that it is accessible from outside the machine without removing

any covers, but the controller handle must be in the "off" position before the fuse can be removed, while fuse removal locks the controller handle in the "off" position.

The cable that connects the cable reel to the power supply is permanently connected to slip rings which are inclosed in an explosion-proof casing. The cable that connects the cable reel to the motor is provided with a plug which connects with the slip-ring brushes in such a manner that air cannot get outside the casing if the plug should be withdrawn while the current is flowing.

The trailing cable is clamped to the frame of the machine by an insulated clamp which sustains the stresses



FIG. 2. FACSIMILE OF NAME PLATE

that might otherwise come on the insulated binding posts by means of which electrical connection is made to the interior of the controller casing. These binding posts are specially designed to prevent the working loose of stranded conductors and are protected by a metallic shield.

Where the trailing cable enters the machine frame and also where it is attached to the cable-reel plug, the cable is protected by a flexible steel armor that bends easily to a minimum radius beyond which it will not go. This armor is designed to prevent the excessive wear that usually occurs where cables of this sort enter metallic frames.

All wires are inclosed in explosion-proof casings from the point where the connection to the trailing cable enters the casing of the starting rheostat.

All bolt holes are bottomed or stud bolts are used, so that the omission of a bolt does not leave an opening through the explosion-proof casing.

The Sullivan Machinery Co. has embodied the explosion-proof features of design in its standard "Ironclad" machines; and when ordered, the "permissible" machines may be obtained from the factory complete with the approval plate of the Bureau of Mines. All other machines of the "Ironclad" room-and-pillar type are shipped without the protective devices and without the approval plate. In other respects the machines are identical. Should gas make its appearance in the mine where these machines are installed at some later date or should the machines be moved from a nongaseous mine to one where danger of explosion exists, the owner may convert them into explosion-proof machines and affix the Government approval plate by purchasing the protective devices and observing the cautions prescribed by the Bureau of Mines.

Users of continuous-cutting room-and-pillar machines therefore now have available to them in the new "Ironclad" a coal cutter either already made to conform to the safety standards of the Bureau of Mines, with all that this implies, or which can be made to so conform by minor changes made to the machine without removing it from the mine.

In conclusion it is well to repeat the advice as to supplementary electric equipment made by Mr. Clark in his report, in which he points out that it is of little use to provide safe coal-cutting equipment "if within the limits made dangerous by the presence of gas there are used in connection with the electrical equipment uninsulated wires or wires not installed upon suitable insulators and in a first-class manner. The protection of the electrical system in gaseous places must be made consistently complete."

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### Cutting Down the Fuel Bill

In this article will be given in part the details of the operation pursued by an efficiency engineer in reducing the coal bill of a certain power plant, says R. M. Chargers in *Power*. In this case the reduction was 35 per cent. in the cost of coal for making direct current.

The boiler-room equipment consists of five 350-hp. water-tube boilers equipped with hand-fired stationary grates. Natural draft is furnished by two steel stacks. The coal is Georges Creek run-of-mine, one of the best grades of bituminous coal in the country, running about 14,500 B.t.u. per lb. Practically all attempts to increase efficiency were confined to the boiler room.

The plant had for years nominally operated four boilers, burned on an average about 675 tons of coal per month and turned out about 150,000 kw.-hr. in the same period. The boilers were banked from 1 to 5 a.m. The total steam per kilowatt-hour averaged close to 54 lb.

Upon being called to the property the conditions existing were not unlike those in other plants with which the writer has had to deal. The average draft over the fire was 0.5 in.; the average  $\text{CO}_2$  content in the gases was 7.5 per cent. in the first pass and 4 per cent. in the last; the intervals between firing periods were from 40 to 50 min.; the fuel bed was carried about 18 in. thick in front of the fire-doors and from 5 to 10 in. on the rear of the grates; the dampers could be operated rather crudely from the rear of the boilers; the settings were leaky, especially around the doors and drums.

The operating force had never had any instruments for testing at its disposal, or been instructed along the lines of efficient boiler-room operation. It was necessary to show that these conditions were not good practice and that considerable coal could be saved by slightly changing them. Of course, the usual protests were made.

It was finally made clear that 4 per cent.  $\text{CO}_2$  indicated poor furnace operation, and that 0.5-in. draft was much too high for burning 7 lb. of coal per square foot of grate surface per hour. The firemen were also shown that, contrary to their former opinion, no mystery surrounded  $\text{CO}_2$  and the theory of draft, and that it was unnecessary to understand the laws of Boyle, Charles, Gay-Lussac and Avogadro to put them into common, every-day boiler-room practice.

### BUILDING UP EFFICIENCY

After interest, enthusiasm and coöperation had been aroused, the work of building up the boiler and furnace efficiency was started. All the coal was weighed, the water measured, and the steam metered—in fact, accurate data were kept on the entire plant. During the first 24 hours the firing intervals were reduced to about 30 minutes, the fires kept more even and thinner, the draft cut down to an average of 0.36 in. over the fire, the water level kept more constant, and the  $\text{CO}_2$  in the last release averaged 7 per cent. As a result, the evaporation increased from an average of 6.75 to 7.5 lb. of water per pound of coal, bringing the boiler and furnace efficiency up to 50 per cent.

On the following day the dusting doors were made to close tightly and many of the air leaks were stopped around the drums and headers. The  $\text{CO}_2$  ran 7.5 per cent. in the last pass and 10 per cent. in the first, showing that there was yet considerable air leakage. The intervals between firing were then cut to about 22 min., the fires kept more even and thinner, and the draft throttled down to an average of 0.20 in. over the fire. This 24-hour period showed an increase in evaporation over the previous one and the boiler and furnace efficiency was brought up to 57 per cent.

To get still better results, it was explained to the force that one boiler would have to be cut off the line to give more nearly rating on those remaining and a slight overload during the peaks. (We had been informed that three boilers would not pull the load, especially the peak.) One boiler was taken off, however, and the peak carried with no reduction in the steam pressure the draft being regulated to take care of the extra demand on the boilers.

To be brief, the results of the next four days increased in like proportion to those of the first two days. In the meantime, still another boiler was cut off, leaving only two fired up. On the seventh day the firing was done about every 12 to 14 min. On account of other duties, the firemen could not further reduce this interval. More air leaks were stopped and the  $\text{CO}_2$  maintained at 10 per cent. in the last release. The draft was now about 0.14 in., the fires approximately 10 in. thick and the bare spots scarce. The results then were: Evaporation, 10.4 lb. per pound of coal; coal per kilowatt-hour, 5.4 lb.; efficiency, 69.5 per cent.; this is a reduction on coal costs alone of 40 per cent.

Since this work of several months ago, the reduction in fuel has averaged 35 per cent. With coal at \$3 per ton, this means a saving in this plant of over \$700 per month.

## New Operation in an Old Field

BY C. M. YOUNG\*

**SYNOPSIS**—A description of several new mines and mining towns lying a few miles from Pittsburgh. Purchased power is employed exclusively and the only coal burned at the mines is for heating and blacksmithing.

The Pittsburgh Coal Co. has recently opened three new mines in the territory lying to the southwest of Pittsburgh. This territory is not new, but there is still a large amount of unworked coal in it. The part lying nearest to the city has naturally been worked first, and it is now time to more thoroughly develop that lying farther away. The new mines are from 11 to 15 miles from "the Point," at the junction of the Allegheny and Monongahela Rivers.

In order to get proper shipping facilities it was necessary for the company to build a new railroad, the Montour R.R. This road is used only to transport fuel from the mines to the coal-carrying roads. It connects on

There are several mines under the same control already opened in this territory. These are in different stages of development, some being already worked out. The new mines are being opened and developed at such a rate as to supply the demand for the company's coal from this part of the field. The interests of the company are so extensive and its coal holdings so large that it is able to plan the development of its properties so as to keep the supply adjusted to the demand. Still later No. 5, No. 6 and No. 7 will be opened farther to the east.

These operations are in the thin-seam coal of the Pittsburgh district. They occupy territory so wide that there is a considerable change in the character of the coal, passing from west to east. The mines now opened will produce a good steam coal, while those which will be opened later, lying farther to the east, will work in coal which will be higher in volatile matter and may find a market as gas coal.

The first three mines of the series are almost identical in plan of operation and in equipment, as would be ex-



FIG. 1. TIPPLE AND HOIST HOUSE AT MONTOUR MINE NO. 1

the north with the Pittsburgh & Lake Erie at Montour Junction, on the Ohio River, and on the east with the Union R.R., which in turn connects with the Pennsylvania and the Bessemer roads. The new mines thus have shipping facilities which will enable their coal to reach the Lakes and other points from which demand may come. The road is named from Montour Run, in the valley of which stream the northern part of the road is situated.

Montour No. 1 mine is farthest west, and the mines are numbered in series toward the east. There is a break between No. 2 and No. 4 which will later be occupied by No. 3, a mine which has not yet been developed, but whose territory has been assigned and which will be opened when the demand reaches the proper point.

pected from their similarity of location and of conditions. All are yet in the earlier stages of development so far as production is concerned, the output of No. 1, for example, being about 1,070 tons per day over a 1 1/4-in. screen. It is planned that the normal output of each mine, when it has reached its full rate of production, shall be 3,000 tons per day over a 1 1/4-in. screen, which will be equivalent to 4,000 to 4,500 tons in all.

The tipple of No. 1 mine, with the hoist house, is shown in Fig. 1. This well illustrates the simplicity of design employed throughout the plants. The tipples are built across the tracks, and after the coal reaches the landing it moves in nearly straight lines to the cars. The only change of direction is in some of the chutes, where the motion is reversed to get the coal to the proper car. The tipples are built of steel and corrugated iron.

\*Scranton, Penn.



FIG. 2. FAN HOUSE AND HEADFRAME OVER ROCK SHAFT, MONTOUR MINE NO. 1

Two cars are hoisted at a time. The shaft gates are raised by the ascending cages. Empties are pushed on and loaded cars pushed off by rams operated by electricity. These rams are actuated by wire rope wound on a drum which is driven by an electric motor. Winding the rope in one direction drives one ram forward and the other back, and vice versa. The movement of the drum is controlled by a lever. The cars pass from the cages to Phillips crossover dumps and thence to kick-backs. They are then picked up by ear lifts which raise them to a level from which they run by gravity to their positions in front of the cages. The cars hold 2 tons.

Special care is taken to prevent the breakage of nut coal. This is loaded by a chute of new design suspended on chains running over small sheave wheels and is counterbalanced. The lower end is turned up so that a pocket is formed, and the chute is hinged at the turn. Coal from the screen enters the chute and falls to the lowest point. The chute is then lowered, and the motion of the lower end is arrested just before the chute reaches the bottom of its travel, thus opening the hinged joint and allowing the coal to drop out. This arrangement leaves room for box cars to pass under the tipple and at the same time permits the loading of screened coal with little breakage.

#### NO POWER HOUSES ARE TO BE SEEN

One of the most noticeable features of these mines is the absence of power houses. The mines are operated entirely by electricity, which is purchased from the West Penn Electric Co. and is transmitted to the mines at 22,000 volts. Coal is used at the mines only for heating and smithing.

At each mine the main shaft is used only for hoisting coal, the rock, the men and the supplies being handled at the rock shaft, which is also the fan shaft. At these shafts the cars are hauled from the cages by wire ropes

wound on motor-driven drums. The empties are caged on the same side from which the loads are taken. Rock is dumped into pockets from which it is drawn into electric larries and hauled to the dumps.

As the men use only the rock shafts, the offices, supply rooms and lamp rooms are located at these points. Men are not taken on or let off at the ground level, but only at the upper landing. The approach to this landing is a sloping covered passageway built along the side of the main building. The men in entering in the morning must pass through a hall, on one side of which is the lamp room and on the other the offices. This arrangement is especially favorable to the men when they are leaving the mine in cold weather, as they are not exposed to the weather until after they have deposited their lamps and are ready to leave for home. Every precaution that could be suggested by experience has been taken to make these rooms as serviceable as they can be. The Edison cap lamp is used, and it is said to be giving good satisfaction. These mines are only slightly gassy, and the use of safety lamps is to be considered more as a precaution than a necessity.

Each substation contains two motor-generator sets taking alternating current at 2,200 volts and delivering it at 525 volts direct current, with a rated capacity of 522 amperes. The hoists are driven by General Electric induction motors with one reduction of speed. The hoists for the main shafts take current at 2,200 volts and are rated at 300 hp. The speed is 300 r.p.m. no load and 294 r.p.m. full load.

The main shaft at No. 1 is 174 ft. deep. At No. 4 the main shaft is 155 ft. deep and the rock shaft 144 ft. The coal is practically horizontal. The main shafts are 27x30 ft. and are concrete lined. The bottoms are arched for 200 ft. from the main shafts and 100 ft. from the supply shafts.

#### THE PANEL SYSTEM IS EMPLOYED

The mines are operated on the panel system. Main entries are driven on the butts and consist of five parallel openings. The face entries have four openings. Room entries are parallel to the main entries and therefore are butt entries. Rooms are turned from only one side of each room entry instead of from both sides.



FIG. 3. REAR VIEW OF SUBSTATION AT MONTOUR MINE NO. 2

The room entries are spaced 400 ft. apart and rooms are 350 ft. long. Fourteen rooms are turned from each room entry. The plan of operation is to have the 14th room on one entry completed at the same time as the 12th on the following entry, the 10th on the next, and so on. Pillars will be drawn back as soon as the rooms are completed, and the arrangement of having one panel two rooms in advance of the next will give a diagonal line of break. Rooms are driven on the face 24 ft. wide with 15-ft. pillars. All coal is undercut to a depth of 6 ft. with Jeffrey 19-A chain machines. Generally two shots are fired in each room.

Haulage is to be entirely by motors when development is completed, though some mules are being used at present. Sixty-pound rails are used on main entries. At present, trips consist of only 35 to 40 cars, but when full capacity is reached, they will contain 75 to 80 cars. Cars hold 2 tons. Chutes, or diagonal breakthroughs, are spaced every 120 ft. for about 1,000 ft. along the

from experience that the simplest good house is best for its employees and that these new towns are somewhat in advance of the appreciation of some of the families. These houses are so much better than those that were considered good enough a few years ago that it seems a trifle unappreciative to suggest improvements.

Both single and double houses are used. Some relief from monotony is given by boarding houses, stores and the houses for superintendents and foremen which are somewhat removed from the main part of each village. The situations of the villages are good, as they are placed, on the summits or slopes of hills. Thorough attention has been given to water and drainage. Precautions are taken to insure cleanliness at the wells.

An innovation is the bathhouses or washrooms which have been provided. These are small houses, one for each two dwellings, built across the lot lines in the rear of the dwellings. They are furnished with running water and are to be used for bathing and washing only. Any

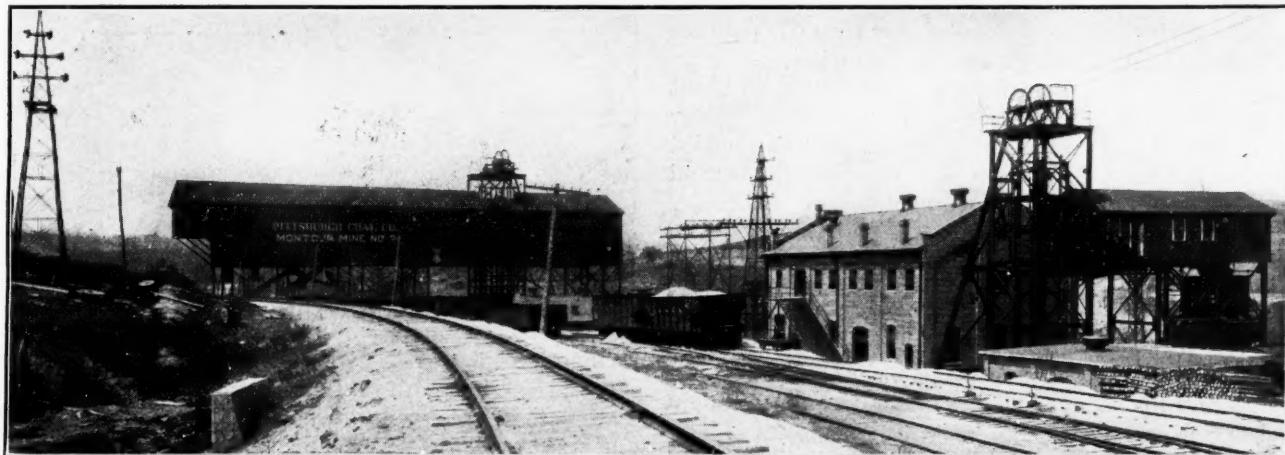


FIG. 4. TIPPLE SUBSTATION AND ROCK-SHAFT HEADFRAME AT MONTOUR MINE NO. 2

main entries from the shafts so that the motor can conveniently cross from the loaded to the empty track.

A somewhat peculiar bottom is in use. It is intended to eliminate delays and facilitate the hauling and hoisting of coal and rock. When the locomotive hauling a trip of loads approaches the shaft, it makes a flying switch and the cars go to the shaft by gravity. When the empty cars leave the cage, they run by gravity to a kick-back, from which they go to the track, where the empty trips are made up and where the locomotive picks them up.

Trips of cars loaded with rock go through a diagonal breakthrough to a road by which they reach the other shaft. Empties descending this shaft go forward in the same direction as that in which they approached the shaft and pass through a road to the empty track at the main shaft, thus having made a complete circuit from one shaft to the other.

The Pittsburgh Coal Co. is progressive in its attitude toward its employees, and without forcing upon them any charity, it takes reasonable precautions to insure their welfare and contentedness. The houses built at these new towns are good examples of simple, serviceable dwellings. Different styles of construction and different colors of paint would add considerably to the attractiveness of mining villages, but this company has found

other use which will interfere with these will be strictly prohibited.

Good playgrounds are provided and are supplied with apparatus by the company. Such grounds have proved popular wherever they have been introduced.

The writer desires to express his thanks for the help given by the Pittsburgh Coal Co. toward the preparation of this article and for the illustrations.

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#### Coal-Carrying Vessels Are Liable to Many Dangers.

Bearing on combustion a New South Wales Commission in its recent report had this interesting note: "The following theory of the spontaneous heating of coal appears to us to be well established. Coal naturally absorbs oxygen from the air and undergoes a process of slow combustion. As this process goes on, heat is developed and the temperature of the coal tends to rise. The activity with which oxygen is absorbed increases as the temperature rises. It appears, therefore, that the conditions necessary for the spontaneous heating of the coal are (1) a sufficient supply of oxygen and (2) prevention of the escape of the heat generated. These two conditions are more or less incompatible. Whether the coal heats or not depends upon whether the heat can or cannot escape as fast as it is generated. Since heat passes away more rapidly (other things being equal) the hotter the coal is, while the supply of air for promoting combustion is conditioned by other circumstances, it often happens that the temperature of a heap of coal will rise to a certain point which it will not pass. If a heap of coal is prevented from coming in contact with air, no heat will be developed. On the other hand, if the air supply be so free as to carry away the heat generated at a sufficient rate, no heating will take place."

### Extracts from a Superintendent's Diary

Our community, like all other communities, is afflicted with a few braggarts—men who can no more refrain from making themselves heroes of cock-and-bull stories than hound dogs can resist barking, and all to about the same purpose. Occasionally circumstances arise when it becomes important to find out what they really do know about certain events; but in spite of all warnings, coaching and attempts to put them on their good behavior, they are rarely able to tell what they know without exaggeration creeping into the narrative, and generally the ones who are unfortunate enough to require their testimony give up in disgust and leave long before the testimony is concluded.

I had this brought home to me today very forcibly while investigating some reports that seemed to indicate that a former resident of our camp is now a fugitive from justice. We spent several hours cross-questioning two young men, former boon companions of the man under suspicion, and at the end of that time our patience had been exhausted and we were still no wiser.

One of the young men insisted upon telling us about queer actions of his late bosom friend, but no sooner did he realize that he had our attention than he rambled off into the most improbable tale imaginable. Several times we tried to stop him, but to no purpose, and finally out of curiosity we gave him free rein and let him rhapsodize until his imagination had exhausted itself. According to his narrative, he and the man under suspicion had led a veritable charmed life; the one planned and executed generally against the advice and protests of the other, until finally the fellow under discussion, seeing that his chum could not be led from the straight and narrow way, decided to leave for pastures new.

Our witness graphically described down to the smallest detail hairbreadth escapes that they had had, and intimated that several times he had been on the verge of "squealing" on his companion, seeing that he would not change his mode of life, but when it came to a showdown, he could not betray his friend. From that he rambled off to an account of how his former chum had really befriended him on one occasion, even to the point of offering his life as a sacrifice, and the very next day had threatened his life and forced him to go into hiding. Had we given him encouragement, undoubtedly he would have continued his narrative until we should have learned that the two of them had on several occasions been responsible for saving our entire village from disaster, but most of his hearers had become so bored that they could not conceal their disgust and he seemed to realize that he was overdoing the matter.

When the second witness came before us, profiting by our experience we gave him no opportunity to branch off into interminable narratives, but even in pinning him down to mere yes and no answers we were not able to prevent his imagination from running away with him; and the interview was brought to an abrupt termination by our constable jumping to his feet and remarking that he would be compelled to commit murder if he could not get away to the woods to hide.

If our former citizen actually turns out to be a crook, fleeing from justice, our comedy of today may yet lead to tragedy in so far as our braggarts are concerned.

### Ready-Made Miners' Houses in West Virginia

The War Eagle Coal Co., of War Eagle, W. Va., has been using houses with open grates. Several children of the employees have been seriously burned, one of them fatally. To eliminate this trouble, the company is building all the houses on the style shown in the illustration.

The house consists of five rooms—two bedrooms 12x14 ft., a sitting room 12x14, a dining room 12x14 and a kitchen 12x12.

Instead of placing a grate in each room, which has been the custom among coal companies, this type of house is equipped with a stove in the center, where the partitions of the four rooms join, the stove heating all four rooms in the main part of the house. This eliminates the serious accidents which so often occur from the clothes



HOUSES ERECTED FOR WAR EAGLE, W. VA., MINERS

coming in contact with the fire in open grates. For these stoves, slack is used instead of lump coal. The company figures that it takes less than one-fourth as much coal for the stove as it formerly did for open fires.

The fire hazard is cut down by the elimination of grates, and the houses are more sanitary and much neater in appearance. The employees greatly prefer these houses to those built on the old style.

The house here shown is a "Minter Ready-Cut," constructed by the Huntington Lumber and Supply Co., of Huntington, W. Va., which concern has a patent on this particular style of construction.

### Explosion at Ernest, Penn.

Twenty-five bodies have been recovered from Ernest No. 2 mine, of the Jefferson & Clearfield Coal and Iron Co. The mine is located at Ernest, about 6 miles from Indiana, Indiana County, Penn., and was the scene of a fatal explosion on Feb. 11. Officials of the mine company say they are sure no more men were killed.<sup>1</sup> The bodies of the last six men were found under a pile of débris and rock loosened by the explosion. One man is missing and unaccounted for.

James McGuire, fireboss, and George Love were overcome while heading a party of rescuers who were penetrating the masses of fallen coal, slate and rock. In their haste to reach the miners imprisoned a mile and a quarter down the slope, they went far ahead of the fresh air which was being forced into the mine. Their safety

<sup>1</sup>Later reports declare that in all probability 30 men were killed and that 26 bodies had been recovered.

helmets became ineffective, and the poisonous gases which filled the clogged workings caused them to fall in their tracks. Other rescuers came upon them and hurried them back to the fresh air.

General Superintendent S. M. Fritchman and Assistant Superintendent S. F. Oldham, together with State Mine Inspectors T. S. Lowther, of Indiana, and C. H. Crocker, of Blairsville, and Coroner H. B. Buterbaugh, have started a thorough investigation into the explosion, the cause of which has not so far been determined.

#### WAS THE EXPLOSION CAUSED BY A SAFETY TEST?

The investigation thus far has shown that Fireboss Charles Strandquist and Mine Foreman William Ball lost their lives while making the second gas examination of the day in the mine, the workings being examined twice daily. The first inspection was completed at 11 a.m., and the afternoon test was nearly finished when the explosion occurred, killing both the men who were making it.

The seat of the explosion was the 15th right room of headings 3 and 4, about a mile and a quarter from the entrance. Ordinarily 43 men worked in this section, but on account of a funeral of one of the miners held in Indiana that day, only 30 men were at work in the rooms, which somewhat lessened the loss of life, as every man on duty in the vicinity of the explosion was killed.

A half-dozen theories as to the cause of the explosion might be advanced, any one of which might be correct, but it is doubtful if investigation, as thorough as it will be, will ever reveal the real cause of the disaster. This mine has a tendency at times to be gaseous and for this reason extra precautions have always been taken in regard to the daily test for gas.

The Jefferson & Clearfield Coal and Iron Co., with its allied interests, carries its own compensation insurance, and it is estimated that the company will pay out between \$50,000 and \$60,000 in satisfaction of their liability.

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#### Southern Appalachian Operators Association

The annual meeting of the members of the Southern Appalachian Coal Operators Association was held at Knoxville, Tenn., Feb. 8, the following officers being elected: President, James R. Woolridge, of Woolridge, Tenn. (succeeding himself); first vice-president, John L. Boyd, Knoxville, Tenn.; second vice-president, J. H. Keeney, Middlesboro, Ky.; third vice-president, H. S. Pless, Knoxville, Tenn. The members of the executive committee are: G. M. Shoemaker, La Follette, Tenn.; F. D. Wood, Pineville, Ky.; H. L. Cory, Chattanooga, Tenn.; C. S. McManus, Fork Ridge, Ky.; L. I. Coleman, Knoxville, Tenn.; George M. Camp, Knoxville, Tenn.; R. E. Howe, Middlesboro, Ky.; Alex Bonnyman, Westbourne, Ky.; E. C. Mahan, Knoxville, Tenn.; A. A. Wood, Petros, Tenn., and Capt. W. C. Tucker, Benham, Ky.

President Woolridge discussed freight adjustments that had been made during the year and reported that the organization was in excellent condition. J. E. McCoy, secretary, reported the addition of 12 new members, bringing the total membership up to 90 operating companies, producing 90,000,000 tons of coal annually. The annual banquet was held in the evening.

#### The Trend of Conditions on New Contracts

The first effort of the Central Purchasing Committee of New York City to buy coal for the city departments in the open market (pp. 234 and 317) was made on Feb. 9 and resulted in a saving of \$5,246 on a purchase of 4,645 tons, comparing the prices tendered with those received on Jan. 14 of this year.

Buying in the open market had been authorized by the Board of Aldermen when on Feb. 8 a resolution was passed by that body permitting the Central Purchasing Committee to buy coal to the value of \$100,000 without competitive bidding. This was in response to the request of the committee for permission to spend \$200,000 in this way (No. 2041, p. 234). In its communication at that time the committee stated that permission was asked because a comparison of the tenders received on Jan. 14 (Nos. 1906 and 1914, pp. 108, 148 and 236) and those received on June 11 (No. 706, Vol. 7, pp. 877, 915, 955, 1004 and 1048) showed that prices were from 15 to 30 per cent. in excess, while the prices for steam coal averaged 100 per cent. increase and in some cases were 200 per cent. in excess.

Contract No. 1914 called for 108,672 tons of anthracite, 7,830 tons of mine-run and 300 tons of gas coal. It runs from Apr. 1 to Nov. 30 and contains 93 items. Awards were made on four items, aggregating 8,600 tons of buckwheat No. 1 and 5,500 tons of mine-run. Many of the items were not bid on, only 5 bids being received on this contract, while 17 were received on No. 1906.

It was because of the high prices bid on these contracts that the committee decided to try the open market, and a letter was sent to dealers throughout the city asking them to notify the committee what kinds of coal they had available and the approximate price for delivery.

A tabulation showing a comparison of the prices received on Feb. 9 with those received under contract bidding on Jan. 14, follows:

	Gross Tons	Open-Market Bids, Feb. 9	Contract Bids, Jan. 14
Armory Board:			
Buckwheat No. 1.....	530	\$4.40	\$6.25
Health Department:			
Buckwheat No. 1.....	1,000	4.34	4.85
Buckwheat No. 1.....	1,000	4.27	4.85
Buckwheat No. 1.....	1,000	5.10	5.23
Charities:			
Mine-run .....	800	3.45	6.67
Egg .....	250	7.00	...

In the Philadelphia market the largest contract awarded recently was the one calling for 25,000 tons of bituminous coal for the city pumping station at Shawmont and 30,000 tons for the Torresdale filters, to be delivered by Apr. 1 (No. 1835, Vol. 8, p. 1089, Vol. 9, pp. 36, 106, 148, 193 and 233). Only two bidders complied with the requirements; and the lowest prices, which were \$3.83 for rail deliveries to both points and \$4.08 via water to Torresdale, were considerably higher than on the same coal for which bids had been received three weeks previously. The only anthracite business pending was that calling for 3,000 tons of buckwheat coal for Girard College (No. 2020, Vol. 9, p. 233). Owing to the extraordinary demand for this class of coal very few bids were received, and the award was made to the George B. Newton Coal Co., at a price understood to be considerably in excess of the previous figure.

The anthracite interests have taken all the business they intend to, and as their contracts only run to Apr. 1

inquiries are already coming in from the consumers as to their attitude on the problem of supplying them with fuel after that date. While ordinarily the bituminous shippers close most of their contracts around April, they show no inclination at this time, owing to existing labor conditions, to do any contracting, although they are in receipt of numerous inquiries from their customers in this direction. There has of course been a little business closed, but it has been mostly for delivery before Apr. 1.

In New England the marked softening in prices since Jan. 15 has influenced buyers not to place contracts for any volume of coal or for any extended delivery. Only most pressing requirements have been under consideration, and practically the only purchasers have been those whose consumption has exceeded estimates or those who were fearful their regular contractors would be unable to keep them supplied. The Lowell, Mass., pumping station con-

tract (No. 2036, Vol. 9, pp. 234, 280), although for a small tonnage, is typical of the period just passed through. The successful bid was \$7.25, about \$2.50 higher than normal.

On large contracts either at tidewater or f.o.b. tide-water distributing points for inland delivery, practically nothing has transpired. The future of water freights along the coast is regarded as very uncertain, and since all prices in this territory turn largely on the supply of boats it is felt there will be no contract activity until transportation people submit quotations that can be considered. While the current basis is materially less than the highest range of the season, it is yet far above normal. It is neither one thing nor the other, and buyers will not enter the market until there is some better gage of spring conditions, particularly when such a large volume of coal was covered in at the low figures named last October.

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## The Labor Situation

**SYNOPSIS**—The bituminous operators at Mobile, Ala., seem to show such a degree of cohesion that a successful conclusion of their conference with the union men is anticipated. The anthracite operators again memorialize the public, showing that the retailing cost is nearly equal to the cost of mining and preparing the coal. Extensive increases in wages in the bituminous coal fields. The commission appointed by the President to investigate the conditions in Colorado declares conditions are good.

With the possibility of a widespread strike as an alternative should they finally be unable to agree, 32 representatives of the bituminous operators in Pennsylvania, Ohio, Indiana and Illinois assembled at Mobile, Ala., Tuesday, Feb. 8, to meet an equal number of delegates comprising the wage-scale committee of the United Mine Workers of America, in an attempt to arrange a new working agreement which will be in force for two years if put into effect. The sessions opened Tuesday in the assembly room of the Cawthon Hotel. Without exception every day was marked with bitter controversy, indicating that the operators will strenuously resist any appreciable increase in wages as well as all the other demands.

While no definite results have been reached, the delegates on both sides express hopeful opinions as to the outcome. Notwithstanding this, there is an undercurrent which insists that there is not the slightest hope of accomplishing anything like a settlement here before the time for adjournment, which must be in time for several of the delegates to reach New York by Feb. 21, when the wage conference of the anthracite mine workers and operators will begin.

### Names of Operators Present at Conference

Pennsylvania operators are represented by W. K. Field, John A. Donaldson, W. W. Keefer, J. G. Patterson, William Henderson, J. T. M. Stonerod, Marshall Bell and George W. Schluederberg, all of Pittsburgh. From Indiana there are P. H. Penna, Hugh Shirkie, J. C. Kelsom, of Terre Haute; E. D. Logsdon, Cambridge City; David Ingle, Evansville; William Zeller, Brazil; John Hewitt and M. L. Gould, of Indianapolis. The Ohio operators include S. H. Robbins, J. M. Winder, C. E. Maurer, Michael Gallagher, A. A. Augustus and Joseph Pursglove, of Cleveland; W. H. Haskins, of Columbus, and G. C. Weitzel, of Walton. To look after the interests of Illinois, A. J. Moorshead, E. T. Bent, C. M. Moderwell, of Chicago; H. C. Perry and P. M. Hucke, of St. Louis, and H. H. Devereux and W. B. Jess, of Springfield, are the operators' delegates. The basic scale and other demands were given in full in "Coal Age," Feb. 5, p. 255.

Upon the opening of the conference, Hugh Shirkie, of Terre Haute, Ind., was elected chairman, William Green, Secretary,

and C. E. McLaughlin, of Illinois, assistant secretary. President White, of the United Mine Workers immediately sought the recognition of the chair and moved the adoption of the demands as a whole. Nearly two days were taken up in arguments before the motion was lost and the demands as a whole formally rejected.

The conference then proceeded to take up the list seriatim. The mine-run demand was the signal for many impassioned and bitter speeches. A whole day was occupied in debating the matter from many angles. The demand was formally rejected on Thursday, and the subject of a 10-per cent. increase in tonnage rates was taken up. When the conference adjourned on Friday until Monday, the debate on this matter was still in progress.

No session was held Saturday on account of Lincoln's Birthday, a legal holiday. Many of the delegates of both sides hurried out of town for their brief vacation. Monday the session began at 1 o'clock, instead of 9 in the morning, as had been the practice during the preceding week. The discussion on Tuesday relating to the mine-run provision was continued without a result being reached.

After summing up the situation, officials of the mine workers' union pointed to the record of the former conference to show that a distinct gain had been made here. At the end of the fourth day in the last conference it found that the formal demand of all the claims as a whole was still under discussion. This was taken to indicate that some conclusion will be reached before the adjournment or postponement is taken at the end of this week.

### Prosperity Not a Cause for New Wage Scale

The stand of the operators is that the present state of the market is temporary and dependant on the uncertain continuance of the war and on embargoes, which latter arise from the disturbance of the regular course of ocean shipping. In this they are correct. Great industrial activity is always temporary, and the present improvement in trade is by no means a normal development.

Prosperity is never a good cause for a permanent increase in wage, though it may be possible to fix a sliding scale to take cognizance of temporary changes in prosperity. The miners do not like sliding scales, however, unless they are constructed to slide only one way.

Too often have operators, blinded by good times, given large increases. When the demand ended they found themselves shut out of the market, and realized that their generosity was only a basis for a percentage increase based, not only on what they had previously paid, but on what they had foolishly conceded in a moment of large earnings.

An increase can only be justified if general enough and uniform enough that the market is inevitably put on a high-price plane. This is the only basis on which a new and more generous contract can be rightly conceded. Some corporations, however, like the Ellsworth Collieries Co., a concern which has a contract with the union, have granted a 10-per cent. increase based on immediate prosperity and not on a general relevel of wage rates. This increase is on the thick-vein

rates and represents far more of an actual advance than the nonunion coking districts have granted.

W. K. Field admitted at the conference that if the companies advanced wages the contracts between the Pittsburgh Coal Co. and the United States Steel Corporation would automatically provide an increase in the price of coal which would take care of the advance. Many coal companies have similar contracts. But this only covers present agreements for their life and protects much of the trade not at all. The operators are therefore justified in looking with apprehension to the sphinxlike fields of southern West Virginia and Kentucky. Till they have spoken there can be no comforting assurance. Moreover, the action of the nonunion companies in northern West Virginia and central Pennsylvania has been to raise wages an amount inadequate to justify the increases which the union is demanding in the regions where it is in partial control.

By an oversight last week the eleventh demand of the Indianapolis wage-scale committee was made to read, "We demand that every Saturday shall be an idle day." The requirement was only for every other Saturday, which is a much more moderate demand.

#### Anthracite Operators' Third Statement

The anthracite operators made a further statement of their position on Feb. 12, and the material was published as an advertisement in the papers of Feb. 14 under the title, "Cost of a Ton of Anthracite Coal from Mine to Cellar." The retailing cost is put at 29.66, or nearly 30 per cent., the transportation cost at 21.38 per cent. and the production cost at 48.96 per cent. Of this latter item labor cost covered 24.83 per cent., other producing and preparing costs 8.28 per cent., loss on small sizes 13.10 per cent. and earnings 2.75 per cent.

But it will be best to quote the statement of the anthracite operators at length:

A ton of anthracite stove coal (weighing 2,240 lb.) and delivered in the coal bin in New York district at \$7.25, averages at the mine \$3.55 and yields a return on the investment of 20c.

The lack of accurate information relative to the production, carrying and marketing of coal has caused many fair-minded men to ask questions, believing that there was a tremendous profit for some one connected with the coal industry, either in its production, transportation or sale and delivery.

That there may be no further doubt on this subject, there is set forth below a plain, easily understood statement showing the cost in detail:

Cost to consumers, per ton of 2,240 lb., \$7.25. A short ton, containing 2,000 lb., costs \$6.50.

Average retailing cost per ton, including rent of office and yard, lighterage, handling at yard, breakage, cartage, administration expenses and retailers' profit.	\$2.15
Average transportation cost per ton, being the freight rate from Lehigh and Schuylkill regions to New York harbor.	1.55
Average production cost per ton, including colliery cost, labor (approximately \$1.80); materials of all kinds, royalty, taxes, depreciation of coal lands, and equipment, administration expenses and accident indemnities.	2.40
Losses on small sizes of coal, sold at less than cost of production, per ton.	.95
Operators' earnings, available for return on investment, average per ton (the latest report of the United States Census shows less).	.20
	\$7.25

The operators have no part in retailing coal, and the figures of cost and profit for retailer represent the difference between the price to the retailer and the cost to the consumer. This retail value of \$7.25 per long ton, or \$6.50 per short ton, varies in different cities and towns because of varying freight rates and varying conditions governing the handling and delivery of coal to the consumer.

In order to encourage the buying of coal in the months of low consumption and to insure regularity of mine operation and labor employment, the prices are fixed below the average in the spring and above the average in the winter months, varying in the same town with the seasons of the year.

#### All Sizes of Coal Obtained at the Mine

Anthracite as it comes from the mine is a mixture of all sizes from lump to dust and contains a certain amount of rock, slate and bone. In order to remove the refuse, break down the lump coal and screen the product into nine commercial sizes, the mine coal is dumped into a "breaker," where it is subjected to an extensive and expensive manufacturing process. The proportion of the resultant sizes is a matter beyond the control of the operator and depends on the character of the coal he gets from the mine. The percentage of each size varies as between different collieries and at different times at the same colliery. What is more to the point, the market price of the different sizes varies more widely than the percentage of each.

The report of the United States Geological Survey for 1914, page 717, gives the amount and percentage of each size produced in that year in the entire field. By using those percentages and by assigning to each size of coal the average net receipts at the mine actually realized by some of the larger companies, it can readily be determined that each 100 tons of coal dumped into the breaker would produce the following average result:

Size of Coal	Tons of Each in 100 Tons	Average Price Realized	Total Value
Lump and broken*	5.3	\$2.95	\$15.63
Egg*	12.4	3.45	42.78
Stove*	20.6	3.55	73.13
Chestnut*	23.0	3.75	86.25
Peat	11.8		
Buckwheat†	13.4		
Rice†	6.8		
Barley†	6.7		
	100.0		\$268.10
			\$2.68

\*Domestic sizes sold above the cost of production in year 1914.

†Sizes sold below cost of production in year 1914.

Losses from shrinkage, rescreening, on account of storage and rehandling bring the price down to about \$2.60 per ton at the mine—the last figures reported by the United States Geological Survey, to which adding loss on small sizes of coal sold below cost of production (95c. a ton) makes a total of \$3.55 per ton.

At some mines, the cost of labor is less and the proportions of profitable sizes are greater and the profits correspondingly larger, but there are just as many where the proportion of domestic coal is less and the colliery returns lower. Public necessity requires the output of all the mines, and the price of the entire product must be high enough to enable the continued operation of those mines which yield the smaller returns, but which must be operated in order to supply the needs of the public.

#### Even the Butcher Has Choice and Cheap Cuts

The situation is much like that of the butcher who buys his beef on the "side" for 10c. a pound. He sells his choice cuts at 30c., less desirable cuts at 20c. and brisket and shin bone at 9c. a pound. His profits are obtained from the choicer cuts. The anthracite operator gets from 55c. to \$3.75 per ton for his coal, selling 40% of his output below the cost of production. He cannot get more for his small sizes, because they are in competition with bituminous coal for steam purposes.

Those who question this item should realize that the making of freight rates on coal, as well as on every other commodity in the United States, is in the hands of the Interstate Commerce Commission, which has full power to raise, lower or confirm existing freight rates. On April 1 of this year an order of the Interstate Commerce Commission becomes effective establishing a comprehensive schedule of freight rates on anthracite coal throughout the entire section of the United States bounded by the Mississippi, Ohio and Potomac rivers and the Atlantic Ocean.

The anthracite industry as a whole is now conducted on as low a margin of profit as is possible if the operators are to continue to serve the public.

Among other demands the miners ask for an increase of 20 per cent. in wages. The cost of this one demand alone to the anthracite industry will be \$23,000,000 annually, which is approximately twice the total profits made by the operators, as stated by the latest report of the United States Bureau of the Census.

#### How the Umpire Straightens Out Disputes

On Jan. 29, Charles P. Neill, the umpire of the anthracite board of conciliation, whose work is to decide the differences on which the board cannot agree, gave judgment on several matters. Certain employees at the Goodspring colliery of the Philadelphia & Reading Coal and Iron Co. describing themselves as timber cutters complained they were only paid \$10.34 per week, whereas the rate was \$15.31. They said that in 1902 they received \$13.02 for the work they are now compelled to do for \$10.34, but they failed to adduce proof that this was a fact. The company declared the men were timber cutters' laborers and were receiving the correct rate, showing that only one man on any timber bank was paid \$15.31 and he was classed as a timber cutter.

On the same date Umpire Neill decided that the mining corporations were justified in laying off engineers, firemen and pump runners, substituting unorganized salaried men during slack times. The Lehigh Valley Coal Co. and Coxe Bros. Co., Inc., laid off the daymen indicated, replacing them by those on their monthly force, and as a result there were several strikes in Jeanesville a year ago. The practice of laying off men and filling their places by the permanent staff was shown to be practiced in the strike of 1902 and the suspensions of 1906, 1909 and 1912 and therefore justified by precedent.

#### Several Bitter Disputes as to Car Loading

Men in No. 10 colliery of the Lehigh Coal and Navigation Co. claimed that they were working as rock-battery hands and were paid as if they were coal-battery workmen. They believed they were entitled to higher pay and the umpire so decided. The rate for coal-battery hands is \$0.242 per hour.

At the Vulcan colliery of the Lehigh Valley Coal Co. the cars carry a "bustle"—a crossboard 8 in. high which retains the coal when on a slope. A dispute arose as to whether a full car of coal, for which payment is made, should be filled to the top of the bustle or higher. The umpire found that prior to 1902, when the Anthracite Commission made its report, it had been customary to load up to the bustle, but recently foremen have been demanding a loading to a greater height. The miners were admonished that they must load as high as the top of the bustle, and the company was told

that they were justified in making no larger demands on the miners.

The topping grievance also manifested itself in the case of the Shenandoah City miners against the Philadelphia & Reading Coal and Iron Co. The umpire here directed that topping above the 6-in. customary should be paid for by the company. He suggested that the operating company and the miners should determine what height of topping at the loading point would give the requisite topping at the breaker.

#### Firemen Wanted 8-Hr. Rate for Longer Day

The firemen at Foster's Tunnel of the Lehigh Coal and Navigation Co. urged that they should be paid on the basis of an 8-hr. shift. The company argued that the men did not have duties as regular firemen and that the places were filled by men who could not do laborious work. When the firemen were given an 8-hr. day in 1902 it was because the board found that the work was laborious and it stated plainly that the men should not be required to spend so many hours at it. The 8-hr. basis of payment was denied by the umpire on Jan. 31. The men being willing to work more time if paid for it was a sign that the work was not laborious.

At the Gilberton colliery of the Philadelphia & Reading Coal and Iron Co. during the 1902 strike certain hoisting engineers remained at work and were paid thereafter \$90 per month instead of \$83.50, the union rate. When these men were replaced by others, the latter demanded the higher rate, but the umpire refused to support the demand by his decision.

Certain fan engineers of the Lehigh Coal and Navigation Co. desired to receive the same pay for a 9-hr. day as they had previously been paid for 12 hr. This claim was not sustained. At White Oak colliery the Delaware & Hudson Co. claimed that the compensation per lineal foot for removing "middle rock" in the robbing of chamber pillars should be 91c. per lineal yard for each foot of thickness of the rock. The umpire decided against the miners. The rate appears in the schedule thus: "Rock all veins, chambers 91c." and "Rock Allowance, Dunmore Vein, \$0.517 to \$3.63." Evidently the Dunmore vein, worked at the White Oak colliery, had a separate schedule from that of other beds.

#### Minor Mine Officials Also Ask for Back Pay

The mine foremen, assistant mine foremen, barn bosses, firebosses, watchmen and electricians who are employed by the Delaware & Hudson Co. and who are paid by the month are about to make a formal demand on the company for deficiencies in their back wages. In 1912 the miners were granted a 10-per cent. increase, but ceded the sliding scale which had been awarding them 4½ per cent. above the signed scale. This meant an increase of 5½ per cent. only. The monthly men were given an increase of 5 per cent., and the company contended that this was a fair advance in wages.

There was a suspension in the Lykens colliery of the Susquehanna Coal Co. on Jan. 26, which lasted several days. It was a "button strike" to compel 73 men to pay their union dues. One man who refused to walk to the secretary's house was loaded on a wheelbarrow and brought back to his home on the same conveyance. Another man was accompanied to headquarters by a crowd of men singing popular songs and led by a man playing an accordion. One employee who was short of cash and could not pay agreed to stay at home rather than have 1,200 men suffer on his account, but another who was in arrears to the union drove up in an automobile and paid up. The Susquehanna Coal Co.'s miners pride themselves on the fact that they are all members of the union. This unanimity is secured, however, by methods of intimidation which may be friendly but are none the less illegal and un-American.

Another decision of Umpire Neill was on behalf of the Coal Brook miners of the Delaware & Hudson Co. The men claimed that the middle rock was to be paid for at the same rate as top or bottom rock, while the company contended it should have another rate. The umpire refused to order that the rate applied only to rock a foot thick or over. The schedule is as follows:

Apr. 1, Apr. 1,  
1902 1912

All veins, rocks, gangways, per ft. thick per yd.	\$1.00	\$1.21
All veins, chambers, per ft. thick per yd. ....	.75	.91

The umpire said that 91c. or its equivalent in earlier scales was paid from 1904 to 1912, as was shown by the testimony of the complainants.

At the Locust Spring colliery of the Philadelphia & Reading Coal and Iron Co. 1,300 miners went on strike to force nonunion men to join the United Mine Workers.

A strike occurred recently at the Delaware, Lackawanna and Western R.R. Coal Department's Avondale mine against a new order compelling the drivers and car runners to work 8 hr. one day and 9 hr. the next day. They desired to work full time every day.

#### Hudson Coal Co. Insists on Sober Officials

The Hudson Coal Co. has notified all its salaried employees that any man entering a saloon or leaving it and known to be addicted to intoxicating drink will not be retained in the service of the company. This rule is the well-known Rule G originally promulgated by the Delaware, Lackawanna & Western R.R. and now followed by several railroads. In the lower anthracite coal fields it is already in force with application to all employees, salaried and other.

#### Many Bituminous Companies Increase Wages

In the bituminous regions there have been several wage increases, dating Feb. 1. The H. C. Frick Coke Co., with 20,000 men; W. J. Rainey, employing 1,200 men; Oliver & Snyder Steel Co., with a roll of 1,100 men; the Washington Coal and Coke Co., with 1,000 men, and the Jamison Coal and Coke Co., with 2,500 men, have all granted 10-per cent. increases. These mines are all in the Pennsylvania coking region, the coal being mined mostly for ultimate metallurgical use. The Connellsville Coke Co. and the Newcomer Coke Co., two small concerns, raised wages three weeks earlier.

The new scale is of course the highest paid in the region and is as follows:

Pick mining, room and rib coal, \$1.58 per 100 bu.; pick mining, heading coal, \$1.73 per 100 bu.; pick mining and loading, wet heading coal, \$1.86 per 100 bu.; drawing coke, 90c. per 100 bu. charged; drivers and rope riders, slopes and shafts, \$3.05 per full run; drivers and rope riders, drift mines, \$3 per full run; cagers, \$3.05 per full run; firebosses, \$3.75 per day; tracklayers, blasters and timbermen, shafts and slopes, \$3.05 per day; tracklayers, drift mines, \$3 per day; inside labor, \$2.30 per day; dumpers, tipplemen, \$2.30 per full run; leveling, 14½c. per oven.

The Connellsville "Courier" gives the wage rates in past years and the price of coke as follows:

Year	Mining Rate	Price of Coke	Year	Mining Rate	Price of Coke
1894	\$0.78	\$1.00	1905	\$1.20	\$2.26
1895	.90-.95	1.23	1907	1.35	2.90
1896	1.05	1.90	1908	1.20	1.80
1899	1.12½	2.00	1910	1.35	2.10
1900	1.25	2.70	1912	1.44	1.92
1903	1.35	3.00	1916	1.58	2.50
1904	1.10	1.75			

The Merchants Coal Co., at Boswell and Jerome, a large concern in Somerset County which is mining a "smokeless" coal, has informed its pick miners that their wages will be increased 3c. per ton. The laborers will receive an increase of 10c. per day. Reference has been made to the increase granted by the Ellsworth Collieries Co., a subsidiary of the Lackawanna Steel Co. This was made to date from Feb. 1, though the union scale had still two months to run.

#### West Virginia Makes Concessions to Miners

In West Virginia the largest increase, one of 10 per cent., was granted by the United States Coal and Coke Co., a subsidiary of the United States Steel Corporation located at Gary, W. Va. Twenty-five hundred men are affected. The Consolidation Coal Co., in the Fairmont district, has granted an increase of approximately 5 per cent.

The Hiorra Coke Co., at Hiorra, and the Austen Coal and Coke Co., at Austen, in Preston County, near-by, took contracts last year at a low figure in order to keep their mines at work. The Hiorra Coke Co. is small, but the Austen company employs 350 men. Present prices would permit of higher wages, but not the prices at which the large contracts of the past year were taken. At one of the mines 3c. per ton increase was offered, but the men desired 2c. more and went on strike. The Independence and Newburg mines granted an increase to their men as the prices they were receiving would permit of it.

The aims of the union in Ohio were clearly set forth at the recent district convention. A law to compel the use of Ohio coal in state institutions was urged by the delegates. The Gallagher amendment to the Green bill, by which amendment it will be legal for coal companies to pay for coal by the screened ton, was condemned in an adopted resolution. The miners desire their coal weighed as it comes from the mine. The right of employers to carry their own insurance was condemned by the miners, and they declared it to be their desire that an act be passed prohibiting such self-insurance. A resolution condemning military preparedness was also passed.

At Stewartsville, Ohio, the Stewartsville Coal Mining Co. men have filed petitions with the justice of the peace alleging that they did not receive their wages on Jan. 25. No reason was given for withholding their payment.

At the Equitable mine at Webster 400 men quit work on Jan. 28, alleging that the Pittsburgh Coal Co. had hired too many men and so was placing two men to each room. The men claim that this has reduced their earnings.

The Bay City miners, 500 in number, suspended work at Beaver mines Nos. 5 and 6 in protest against the Michigan

Central Railroad Co., which has been excluding miners from traveling on the ordinary trains with special 5c. tickets. The railroad has declared that such tickets are good only for special miners' trains, the rate on all others being 18c. Similar trouble exists in Saginaw County at the Bliss and Consumers' mines, on the Swan Creek division of the same railroad.

#### C. W. Mills Discusses Colorado Conditions

To a correspondent we are indebted for the following communication regarding the investigation into Colorado conditions:

Charles W. Mills, president of the Climax Coal Co., of Philadelphia, and a member of President Wilson's Colorado Strike Commission with Seth Low and Patrick Gilday, has returned to his offices in Philadelphia and advises that the commission's report will be delivered to the President next week and the commission will probably be disbanded at that time.

Although considerable publicity was given the work of these gentlemen in the State of Colorado, little has been said of their transactions outside of the state, principally because they went about their business without the sensational hearings that have characterized similar bodies which have investigated the unfortunate conditions existing in Colorado. On account of the unsavory results of other commissions, the President's commission was not at first welcomed by the Colorado operators, only one company—the Colorado Fuel and Iron Co.—replying to their first letter with an assurance that they would be received, while the remaining 60 operators met and "resolved" that they would have none of any more commissions. The three investigators found it expedient to wait until the din of the other battles had died down before venturing to visit the state.

During Christmas week they made the trip without being much heralded. They hoped to avoid stirring up feeling in confidence that thereby they could investigate conditions as they actually existed at the moment. Mr. Low, who is widely known, was welcomed by personal friends and soon experienced little difficulty in obtaining close intercourse with operators and miners of all ranks. Mr. Gilday, who has been prominent in national affairs of the United Mine Workers, also was able to secure accurate information from many persons which would not have testified on the stand in public hearings.

#### Colorado Is Mill's Former Stamping Ground

Charles W. Mills, the operator member of the commission, was most at home in all branches which were to be investigated and possessed the further asset of going back into his old home among friends whom he had not seen for about 20 years. Newspaper reports from Denver show him in football togs as he appeared when he organized the first football team that ever played outside the state of Colorado and gave his athletic record of some 25 years ago. The full story of his life appears for the first time and shows a most varied training which represents a fitting equipment for membership on important commissions.

The commission's report will undoubtedly contain many of the opinions of Mr. Mills, who is familiar with the mines in Pennsylvania and other Eastern centers from his experience in the coal business and his having been some years ago secretary of the Bituminous Coal Operators' Association of central Pennsylvania.

#### Colorado Towns Better Than Pennsylvanian

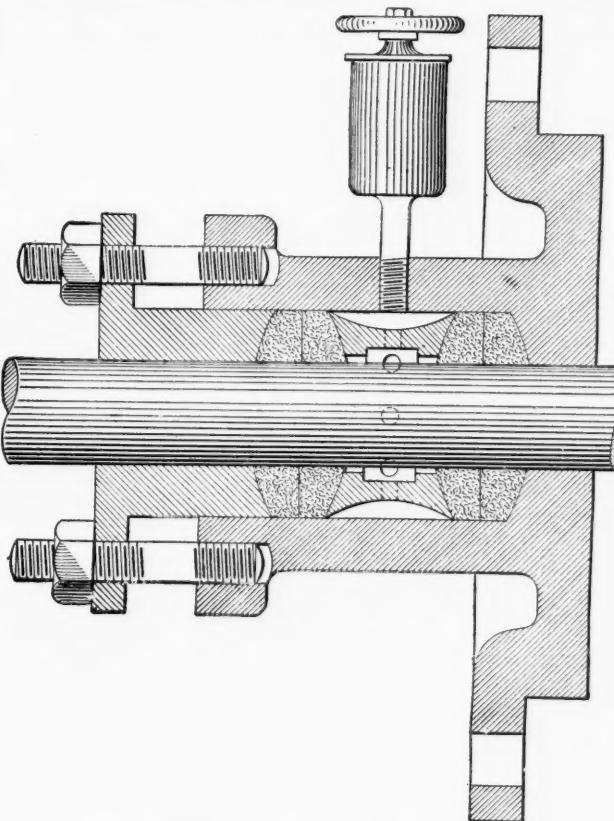
In his office he has a number of pictures of Colorado operations which substantiate his statement that conditions in the camps are much better than about Pennsylvania mining towns. He says that nearly every village visited had a good clubhouse and other welfare features such as are found about the mining towns of only two companies in the State of Pennsylvania. The houses shown are well built and have much more ample ground than is usual in Eastern mining villages. Other general conditions compare most favorably with those in the mining towns of the East.

Mr. Mills declares that the commission finds no discrimination against union men. He refers to two typical cases. In one mine over 400 union men have returned to work, while 20 remain idle, and in another 500 are working, while about 30 are denied jobs for incompetence rather than because of union affiliation. The idle men do not want to work and would only be trouble hunters wherever they might be.

To quote Mr. Mills in summing up: "Those who realize that the strike is over are at work, but those who cannot realize it are idle." Apparently the commission finds the restoration of normal conditions has been accomplished, and doubtless the work of the board has been more fruitful than that of certain other bodies which operated with brass bands instead of investigating. The trouble in Colorado was created for a set purpose and now appears to be ended.

## New Oil Bushing and Packing Lubricator

A device for lubricating the packing in the gland of an engine has been recently invented and patented by James J. Coyne and David R. Llewellyn, of Shamokin, Penn. As may be seen in the accompanying drawing, this consists of a ring which fits the inside of the gland and encircles, but does not touch, the piston rod. The opposite ends of this ring are concaved, so that the pressure between the ring and the packing tends to crowd the packing around the piston rod. The inner face of the ring is recessed, and from this recess a series of holes is drilled



THE LUBRICATOR IN THE STUFFING BOX

radially to the concaved circumference of the ring. Two or more passages are also cut from the internal recess to the concave ends of the ring.

In operation this ring is placed in approximately the center of the stuffing-box, with packing upon either end. An oil or grease cup is provided on the stuffing-box and connects with the annular space around the periphery of the ring. Lubricant entering the stuffing-box from this oil or grease cup finds its way entirely around the ring and through the passages drilled from the periphery to the recessed center compartment. The rod is thus thoroughly lubricated, as is also the packing.

This device has been tried for some time at a plant of the Enterprise Coal Co. and has given entirely satisfactory results. It is found by its use that less packing is required in any stuffing-box and that the life of the packing is greatly prolonged. It is said by the inventors that by its aid the poorest grade of piston-rod packing gives results as satisfactory and lasts as long as the best grade without a lubricating ring.

# The Efficient Mine Foreman\*

By I. C. DELONEY†

*SYNOPSIS—About 72 per cent. of the Alabama certified mine foremen are acting neither as foremen nor as superintendents. The reasons for their failure are their blind copying of other men's systems, their sensitiveness when advice is proffered or errors corrected and their readiness to go blindly ahead without admitting their inability to understand the instructions given.*

The elements entering into the production of coal are more numerous and varied than those surrounding the production of most staple articles of consumption, so that skill of an extraordinary character is required if the maximum of efficiency is to be obtained. Whereas most industrial enterprises are carried on aboveground where all the operations are visible, the production of coal is an underground proposition, and it is impossible to maintain the close supervision that is so easy in a mill or factory. The mine is a place above all others where results hinge upon the ability of the guiding spirits to get the maximum of results out of men who of necessity do most of their work without a "boss" hanging over their shoulders.

## THE "MELTING POT"

Moreover, the task of bringing the largest returns to the owners is complicated by the fact that the human material available to mine operators is not always of the highest order. The coal mine is the true "melting pot," for it brings together men of many lands who speak as many tongues, and the ideals of these men are as varied as their forms of speech. Many have conceptions of the relationship that should exist between employee and employer that must be radically changed if the highest usefulness is to be obtained, and it is a part of the task of the mine foreman to direct the mental processes of these along right channels. In brief, the mine foreman must know men as well as mines and must be able to manage both.

Since men first began to burrow through the beds of the earth that coal might be brought forth for use in carrying on the industries of the world, the efficient mine foreman has been a much-sought individual. The civic authorities, recognizing the tremendous importance of the work in which he is engaged, have been diligent in seeking out men gifted with skill in this line.

Investors, realizing that the safety of their investments depended upon the ability shown in handling the underground work, have been zealous in their pursuit of the efficient mine foreman, and much zeal has been shown by operators in their efforts to develop men who would measure up to the requirements. It is obvious therefore that the mine foreman is an important factor, and it is natural that interest should be felt in any discussion or movement that looks to the increase of the tribe.

Organized effort to select men who seem to be equipped for the duties of mine foreman has been carried on in

\*Paper read before the Alabama Safety Association, Jan. 8, 1916.

†General superintendent, Alabama Fuel and Iron Co., Margaret, Ala.

Alabama for 18 years, examinations being held twice a year during this period. These examinations have brought out a total of 987 men who were successful in passing the test imposed by the examining board of the State Mine Department. These men evidently possessed the technical knowledge necessary to the successful direction of men in the production of coal, yet investigation shows that of the 987 successful applicants only 276 approximately are now employed as mine foremen or superintendents.

The wide difference between the number of successful applicants for certificates of competency and the number of men actually employed in positions they sought shows that there is a vast difference between theoretical and practical knowledge, as well as a great contrast between knowing how a thing should be done and getting it done in actual practice. Of course death and removal may account for some of the missing 987, but the conclusion is inevitable that most of those who successfully passed the examination were unsuccessful when put on the job. Faced with the actual responsibility, most of these men have lost out. They failed, and the big question before mine operators and investors is, Why did they fail?

In trying to find an answer to this question, let us consider some of the factors entering into the failure of the average man who falls short when face to face with the problems of production. Consider then the case of the young mine foreman who has qualified by passing the examination. Almost without exception he is employed within a short time and is given a thorough try-out.

As a rule his opportunity comes from those who know him and have tried to push him forward and qualify him for the arduous duties he is entering upon, for it is the policy with local mine managers to try to advance firebosses, driver bosses, bratticemen, miners and others who by their loyalty and ability have shown themselves worthy of such encouragement.

Therefore the men in authority want to see the young foreman succeed. It is what they have been planning for and what they have a right to expect. So the young foreman enters upon his duties among familiar scenes, surrounded by friends who are anxious to see him succeed.

He is equipped with the knowledge that is necessary to the work and has the authority to carry his ideas into execution. Moreover, he has access to those who are able and willing to give the advice and support that he may need. Yet in many instances he fails to get the desired results.

## IMITATION, SENSITIVENESS AND IMPULSIVENESS WRECK YOUNG FOREMAN'S CAREER

This too frequent failure, according to my observation, is due to one or more of the following causes: First, he has as an ideal some older foreman, in whose footsteps he seeks to follow; second, his feelings are too easily hurt, and third, he fails to obtain full detailed information of projected work.

The first weakness is a very common one, despite the fact that no two men have gifts that are identical or are able to obtain results in exactly the same way. The successful foreman must have individuality and initia-

tive and must learn to rely upon his own resources instead of upon the experience of the other men. I do not believe any two men can handle laborers in the same manner.

They cannot get the work done properly and promote the good feeling that develops coöperation and builds up an efficient organization, by copying the methods and personal characteristics of others. If they are relying upon what other men did under varying circumstances, they are certain to be confronted sooner or later with conditions they never saw the other men face, and then they will be lost. The highly successful man in all walks is not the one who relies upon precedent, but who has the genius and resourcefulness to establish precedents when confronted with extraordinary conditions.

#### BROODING OVER IMAGINARY WRONGS

The matter of injured feelings may seem a small and unimportant one, but it is a big factor in determining the future of the young man who aspires to become an efficient foreman. The young foreman is certain to make mistakes, and as a matter of course he must correct such errors. When undergoing discipline of this character, he is liable to feel that he is being imposed upon and to get "sore." This is an unhealthy tendency, and when men get into this frame of mind, they too often brood over imaginary wrongs until their mental state disqualifies them for efficient supervision. Things continue to go wrong, they lose interest in their work and presently find themselves supplanted by others.

#### ATTEMPTS TO APPEAR WISER THAN HE IS

The third cause of failure brings out a common weakness among men. Most of us like to appear a little wiser than we are, and it is not unnatural for the young mine foreman to want to impress those above him with the idea that he is full of knowledge if not old in years. Frequently when receiving instructions concerning the details of projected work, he will pretend to understand all that he is told, when as a matter of fact he would like to have fuller information. Yet he hasn't the courage to keep asking questions until he has really mastered the details. This is because he wants to give the impression that he is "on to the job"; that he is thoroughly conversant with such matters. He is afraid to display a lack of understanding on any point because, he argues, this might give the impression that he doesn't know as much as he ought. Because of this weakness he starts to work without a clear understanding of what is wanted. Mistakes follow, the work exceeds the estimated cost and vexatious delays are encountered, which all tell against his efforts to make good.

These faults are overcome occasionally by those who possess an even temper and who have the wisdom to profit by their mistakes, and some men who enter with these handicaps finally develop into efficient mine foremen, but I am of the opinion that on the whole the thoroughly capable mine foreman is born, not made. Knowledge of developing underground workings is essential, and experience is necessary, but the boss who is endowed with the faculty of maintaining his poise and asserting his mastery under all circumstances and conditions is the one who proves the biggest asset to those who pay him and who is most secure in his position.

He is the type of man who can execute when instructions are laid down and who can obtain the maximum results because he knows how to lead as well as direct those who are under him. He looks to economies as well as to output, and thus provides a margin between cost of production and selling price that justifies his retention on the job. And this, after all, is the final test.

#### NO ONE CARES WHAT A FOREMAN KNOWS; HIS DEEDS ALONE COUNT

The cost of production is the barometer of an efficient mine foreman, and profitable operation cannot be carried on for any length of time unless the mine is kept in good condition, both as regards production and the safety of those engaged in producing. Ventilation, sanitation and other factors entering into the wellbeing of the miners must be considered to the end that the health and vigor of the men be maintained. Ventilating currents, haulage tracks, etc., of course must be kept in good condition so that the output may be handled with the maximum of efficiency and the minimum of cost. The efficient mine foreman is the one who is alive to these facts and who has the ability to create and to maintain conditions under which the men and machinery are kept upon the highest basis of efficiency.

Men everywhere respect knowledge and ability, and when the mine foreman displays these traits he is able to command the respect and obedience which is essential to the building and upkeep of an organization and which can be trusted to get results. This is the final test of the efficient mine foreman—ability to build up such an organization as is described here; a body of workers which he knows beyond doubt will support him by giving him an honest day's labor not now and then, but every day upon which men are called to go into the mine. With this assured the potential values of the operation will be surely converted into cash. The mine foreman is tested in the long run by his results and not by his cleverness or self-satisfied pose.

### John Alexander Hill

BY BERTON BRALEY

HE played the game of life, and played it well,  
With all his strength—but always played it fair;  
His mind was one to venture and to dare,  
Yet he knew caution. By a potent spell  
Of wisdom and of vision and of might  
He won success; yet, as with hoops of steel,  
He bound men to him with the great appeal  
Of kindness and of justice and of right.

So when he died, those who had worked with him  
Mourned for the passing of the friend they knew  
And for the leader wont to build and plan,  
And whispered as their eyes with tears grew dim,  
"His was a spirit valiant, strong and true,  
He was a master worker—and a MAN."

## Editorials

### Pay Most for the Best Coal

There has been much comment on the fact that the poorest people are paying the most for anthracite coal because they cannot burn the small sizes. The big consumer buys anthracite coal of lower grade than the workingman and pays less for it. It is a fact that the man that demands the best usually has to pay the higher price.

But it is an interesting fact that this is not always so. In the Middle West the steam-shovel operators are stripping coal. Some of it is excellent domestic fuel and some has been so much exposed to the air that it has lost its coking qualities and burns with such difficulty that it is called "dead" coal.

This fuel is in much demand for reduction purposes at the smelters because it does not sinter or coke. This inferior coal sells at the higher price, and it is the rich man who is paying the bill. If he did not use "dead" coal he would have to use anthracite, and the transportation rate makes such a course unprofitable. After all, "best" is a relative term and depends on the purposes for which the material so designated is used.

It is not because the large anthracite is intrinsically better than the buckwheat sizes that it sells for a higher price, though it is somewhat freer of ash, but it is because there is more fine anthracite coal inevitably produced than the market will readily take and because bituminous coal furnishes such a ready substitute for the smaller sizes.

■

### "Give Back Our Eleven Days!"

Only slowly are popular fallacies exploded. There remain a number which still continue to harass us. We laugh at the past with its follies, but we are bound as strongly by the fallacies which still remain as our ancestors were by those in which they believed.

In 1582 Pope Gregory XIII changed the calendar by dropping a few days so as to make it accord with the seasons. This powerful influence enabled the reformation of the calendar to spread over large portions of western Europe. But Great Britain did not change its way of computing time till 1752, and then the reform was not popular. As Chambers' "Book of Days" declares:

The populace of England generally believed that they had been defrauded of 11 days—as if 11 days of their destined lives—by the transaction. Accordingly it is told that for some time afterwards, a favorite opprobrious cry to unpopular statesmen in the streets and on the hustings [stump] was, "Who stole the 11 days? Give us back the 11 days."

But no one had lost that 11-day period. It was merely a new way of reckoning the whole span of time which could not be lengthened or shortened by any redistribution of the days and hours it contained. It was not even a change in the size of the units by which time was reckoned.

But the 11 days and far more than 11 could be gained, perhaps even some few thousands of days, by preventive medicine, care in childhood, safety measures and other methods. Redistribution could not lengthen nor decrease

it, and the men who protested lived no shorter time under the calendar of Gregory than they would have done under the Julian calendar.

It all seems so simple to us now, but we are confronted with another problem regarding which most of us flounder hopelessly. We are producing every year a certain amount of wealth. We may make it look a more abundant crop by expressing it in francs; we may make it appear less by figuring it in English pounds; but it makes no difference how we reckon it, it is neither more nor less for all our fine-spun calculations.

Its real quantity can only be changed by steadiness of labor, by efficiency and by intelligence. It does not do any good or any harm to change the figures by which it is computed; the important matter is to increase the thing itself. Now this wealth is distributed by wages. Suppose wages are increased. They cannot purchase more wealth than is produced. Reducing the average human wage can no more bring poverty to the public than juggling the calendar will decrease the length of human life. Raising the average wage cannot bring prosperity to the people any more than readjusting the calendar will lengthen the span of our brief existence.

But every few years workingmen say that wages must be raised and they feel that every workman is entitled to more money. That is to say that the wealth is to be divided into more parts; the parts are to be made smaller so that each man will have more units, but of course only the same substance. And so we have a struggle. On the one side are the workmen wanting what in effect amounts to a computation of the yearly wealth in smaller units so as to make it appear larger and the employers seeking what in reality is a reckoning of the yearly production in larger units so as to make it appear smaller.

What a kettle of fish about something which, as the French say, imports nothing. Meantime, while employers and employees are quarreling about the reckoning of the annual production, that yearly output is being reduced by idleness just as the fuss about the robbery of 11 days actually did rob some of the busybodies of that length of time, for they spent the period in a futile protest.

In fact we are like the Quinquedonians of Verne's "Dr. Ox's Experiment." Those charming Dutchmen lived and prospered by taking in one another's washing. Now if the rate for washing shirts and collars rose, the Quinquedonians all had more money, but they had no greater wealth of fair linen. That wealth of cleanliness could not be obtained by raised or lowered price, but by more strenuous exertions at the washtub. And it is not different with our varied labors. Work and cunning in our work alone will save the day.

The workman would be better off if the wage rate remained unchanged year after year and if he depended for his happier future on the cheapening of production. If, with a steady wage rate, the employer is able to retain the profit obtainable through the efficiency of new labor

processes, he is strong enough to enforce his profit with a rising wage. So, after all, the adjustments of wage which employees hail are merely disarrangements of commerce from which decreased production and unequal employment result. A new national wage scale, if absolutely even and universally fair, positively leaves the fortunes of the working classes unchanged; and if not even and not fair, and it never is, it places orders where there are few men and fails to renew them where there are many and calls for a redistribution of the labor force and the laying idle of much wealth which was the product of previous years and could have produced much happiness for the community.

Every hopelessly unscientific readjustment of the national wage roll nails boards over sightless windows, leaves machinery to rust in idleness and permits the water to run past the mill. No wonder change and decay are so closely akin, for a change in wage too often involves a decay in property. The anthracite operators rightly urge in their advertisement:

The anthracite miners ask for a two-year agreement, beginning and ending simultaneously with the agreements in the bituminous field—a business arrangement that is shown by actual experience in the bituminous field to threaten a bi-yearly disturbance of the peace and prosperity of the miners, operators and general public. The United States Government reports show that the time lost by strikes and suspensions due to the expiration of wage agreements in the bituminous coal field between 1900 and 1912 in the years in which new agreements were negotiated was 81,362,264 working days—a loss in earning capacity approaching the labor cost of digging another Panama Canal. The loss in time in those years in which no wage agreements were negotiated was less than one-tenth as great.

Perhaps the miners have some slight justification in keeping open the right to ask for a change in wage after two years because meantime important wage and cost-of-living readjustments in other industries might have taken place, but the unfortunate thing is that these calls for increases are made on behalf of humanity in general, as if a universal wage increase helped anyone and was a step further toward an earthly millennium.

■

### Cost of Retailing Coal

The declaration of the anthracite operators regarding the costs of retailing will arouse no little attention. The charge for the labor of mining and preparing coal is only \$1.80, while that which you pay for delivering it in your cellar is \$2.15. The whole question of retailing everything needs a careful inquiry, not so much to furnish a basis for a flagellation of the retailer as to convince the public that the inefficiency of retailing is a crime to be laid at everyone's door.

The retailer in many cases is handling his coal in a way which results in degradation of sizes and so is losing money. But one of his great difficulties is the fact that horse trucks make but poor and uncertain time with the streets inefficiently cleaned. The public pays dearly for the condition in which it maintains its streets. Motor-truck haulage will reduce some of these costs; but after the house is reached what provision has the average householder for facilitating delivery? Conditions hamper the retailer most severely in this part of his work.

The demand for quick service is another burden the coal retailer has to meet. If orders were given in such a way as to leave some leeway in the date of delivery, the retailer would be able to handle his work with less loss.

Owing to the fact that coal is quite usually sold in full wagon lots, the loss in the retailing of coal is not as great as it is in retailing most other articles of domestic consumption; but it is too large, and the public is not without blame for that fact.

Larger purchases made in the summer and without definite date set for delivery, some better methods of delivering coal in the cellar, would help to lower the retailing cost. The replacement of horse trucks by motor trucks will also aid as well as improvements in the conditions of our roadways in the winter. Unsanded roads, unsharpened horses and an inch of snow frozen to the street account for much of the expense of retailing. The conditions are being corrected somewhat rapidly, and the need for changes in these respects is appreciated; and it is to be hoped that the difficulties will soon be removed.

Another trouble is that where the miner works 245 days in the year and we lament his inefficiency, many a small retailer though continuously on the job often spends barely a couple of dozen days in the year actually selling coal. There are too many retailers for the convenience of the public. The rent charges and the wage roll of retailing are consequently too high. The multiplication of middlemen and retailers is the curse of civilization.

There is nothing to prevent one more at any time entering the brotherhood. They all admit they are too many in number, but a living is a living and no one wants to drop out. Like bituminous operators they are a too-numerous tribe. It is part of the price we pay for unrestricted competition, which, like coöperation, has its drawbacks.

■

### A Silent Stoic Among States

In 1914 Ohio was perhaps the noisiest sufferer, and with reason. The value of its proportion of the whole national product fell from 5.3 per cent. in 1913 to 3.1 per cent. in 1914. The Pennsylvania bituminous field is second in the rôle of sufferer, its proportion of product by value dropping from 25.4 to 23.3 per cent. Yet no one realized by its complaints how hard it was hit.

Illinois and Indiana actually produced an increased proportion of product rated by value; for the first produced 9.2 per cent. in 1913 and 9.5 in 1914, while the second is credited with 2.5 per cent. in 1913 and 2.7 per cent. in the year following. Apparently the yell is a function of the lustiness of the lungs of the urchin bitten and not calculable in terms of the violence of the bite. Pennsylvania, old and staid, stood its accustomed punishment with stoical equanimity.

As for West Virginia, which its authorities designate as among the sore-stricken, its proportion of the national tonnage increased as to quantity from 12.5 to 14.0 per cent. and as to value from 9.5 to 10.5 per cent. It suffered, of course, but not like the Pennsylvania coal trade, which learned long ago not to expect prosperity until all other states and all other industries were doing well. The report of the United States Geological Survey for 1914, from which these figures are taken, clearly shows that of the big coal-producing states Pennsylvania and Ohio are those which are losing most ground.

But 1916 will probably show Pennsylvania as the state making the greatest progress, for when the steel industry is booming, the Keystone state enjoys a brief spell of intoxicating prosperity. But alas for the day following!

## Sociological Department

### Extensions of Y. M. C. A. Work in Mining Villages

BY CHARLES R. TOWSON\*

On Aug. 14 of last year *Coal Age* printed a brief article under the title, "Replacing the Saloon in Coal Mining Communities," describing the modern industrial type of Young Men's Christian Association work. Since then important advances have been made, especially in West Virginia and Colorado.

In West Virginia there are now Y. M. C. A. buildings at Decota, Cabin Creek Consolidated Coal Co.; McAlpin, McAlpin Coal Co.; Ramage, Spruce River Coal Co., and Whitman, Island Creek Coal Co. Other buildings have been assured at Mallory by the Island Creek Coal Co., and Omar, by the Main Creek Coal Co.

One picture shown herewith illustrates the story of a Christmas Day in a West Virginia mining village. The

secretary writes: "This is one of the two teams that brought Christmas cheer to 850 children in the mining camps at—. We had two Santa Clauses, with a corps of helpers with each team, who visited every house and delivered the gifts to the children in person. The result was that hundreds of children were made happy with Christmas joys that had never known anything but drunken parents and profanity at the Christmastide and at least one-half of the men who assisted in the work were sober on Christmas for the first time in their remembrance. Notwithstanding a driving rain not a child in our camps, regardless of race or nationality, was missed."

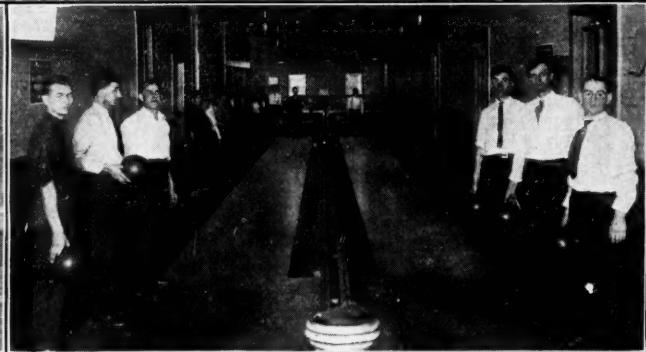
#### NEW BUILDINGS FOR ASSOCIATION WORK IN COLORADO

In Colorado, the Colorado Fuel and Iron Co. has authorized appropriations amounting to \$100,000 for 11 buildings at as many of their mines, where welfare work will be conducted by trained secretaries under Y. M. C. A. auspices. The plan to establish this work was suggested to President J. F. Welborn and John D. Rockefeller, Jr., by the Y. M. C. A. They agreed to let

\*Secretary, Industrial Department International Commission of Young Men's Christian Associations, 124 East 28th St., New York.



TWO SANTA CLAUSES WITH MINE REINDEER AT DECOTA, IN WEST VIRGINIA



BOWLING ALLEYS AT A Y. M. C. A. CLUBHOUSE, McALPIN, RALEIGH COUNTY, W. VA.



CHILDREN ON CRADLE ROLL DAY AT BENHAM, KY., 79 BABIES BEING PRESENT



WINNERS IN BENHAM GARDEN CONTEST FOR COMPANY'S COLORED EMPLOYEES



WHITE EMPLOYEES' 16-PIECE BAND AT BENHAM, KY.

the association, on its own initiative, make a survey of their camps and submit a report with recommendations. To these suggestions was added an offer of service upon terms which showed that the association was not partisan, nor neutral, but mutual, in its relations with employers and employees. Authority was granted to devote the full time of a Y. M. C. A. secretary to supervise the work of the eleven or more local secretaries. This official will represent the combined efforts of the state and international committees of the Young Men's Christian Associations. The association has taken the initiative in this matter, the company merely granting its permission for the study and report. No effort was made by the company to enlist the association, and no suggestion was imposed as to policy or program.

#### SUPPORT AND APPROVAL OF UNION OFFICIALS

The Y. M. C. A. leaders do not organize the work until the support of both the employers and employees is assured. When a representative told John Mitchell in New York and John Lawson in Colorado what the association proposed to do among the miners, they both gave practically this answer: "The Y. M. C. A. work in mining camps will increase intelligence and that is what organized labor wants."

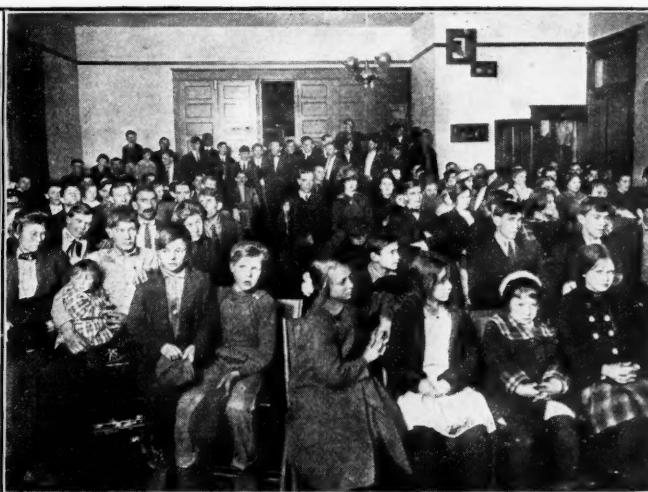
Coal mining Young Men's Christian Associations are operating in eight states. The companies have invested a total of \$263,500 for buildings. They are giving annually for maintenance \$38,200, and the miners coöperate, giving dollar for dollar with the companies, thus making it a mutual undertaking.

\* \* \*

#### Real Conditions in Colorado

Working conditions are as good in Colorado as anywhere in the United States and are to be even better in the very near future. The "Rockefeller plan" is proving a success and will be the means of miners and operators coming into closer and more friendly relations with each other. Coal camps of the Colorado fields compare favorably with the camps of other regions and in many instances are more advanced in social enterprises and sanitation.

The President's commission appointed last year to make a survey of the labor situation in Colorado refused to be considered as an investigating committee and came practically to the conclusions just stated. The



USUAL SATURDAY-NIGHT CROWD AT BENHAM MOVIE

commissioners are Seth Low, formerly mayor of New York City, Charles W. Mills and Patrick Gilday, mining men of Pennsylvania.

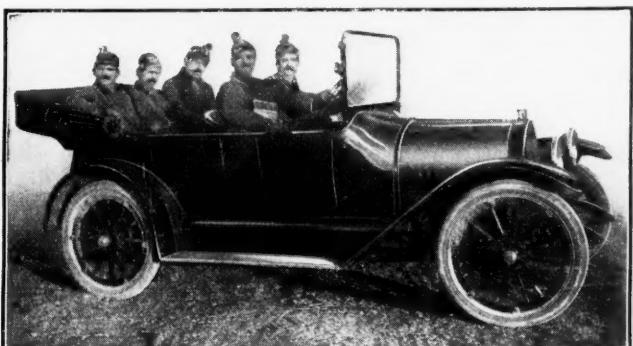
Before the commission could organize and conduct their survey, however, the Colorado strike was called off, and it was not until the end of last year that the commission visited Colorado.

Arriving in Denver Thursday, Dec. 30, they were entertained by the Colorado State Industrial Commission and various officials of the coal companies. An itinerary of the various camps of the state was arranged and the survey started at once.

"Colorado has been investigated so much," stated Mr. Low, in Denver, "that I don't want it to get out that this commission, appointed by President Wilson, is conducting another 'investigation.' Rather we are here simply to talk with people, both miners and operators, and to report informally to the President as to the conditions existing here now."

The commission, accompanied by E. H. Weitzel, general manager of the Colorado Fuel and Iron Co., visited several camps of that company in the Trinidad district during the first days of January, and at the conclusion of the tour of the camps the commission spent Wednesday, Jan. 5, in Trinidad, where they were waited upon by a committee of the United Mine Workers, who presented their side of the case.

Interviewed while in Trinidad Mr. Low stated that the commission had little to make public at this time. "From what my colleagues tell me," he stated, "the mines of this section are in fairly good shape and men



SOME MINERS HAVE THEIR OWN AUTOMOBILES

are being employed in greater numbers than for some time past. I believe that the plan of Mr. Rockefeller will prove a success. While I am saving the details for President Wilson, of course, you can nevertheless say for me that I am sure conditions here are very satisfactory."

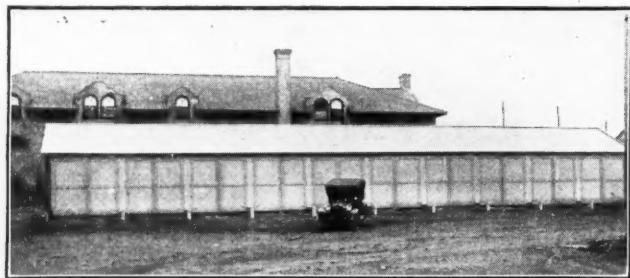
The commission left Trinidad Wednesday night, and after spending several days in the northern fields they returned East to prepare their report to the President.

#### GILDAY DECLARES ROCKEFELLER PLAN WILL FAIL

Patrick Gilday made the following statement in Trinidad, Colo.:

"I believe John D. Rockefeller is sincere in his attempts to better the working conditions of the miners in his camps. I think that he played the part of a man in coming here. There are many who feel that his trip was a 'grandstand play,' but I think he came here to see and to learn at first hand of the conditions that had been reported him from two widely varying angles. And I believe that his trip and what he saw will materially help toward the improvement of working and living conditions in and about those mines which he controls."

Asked if he thought the "Rockefeller plan" would prove as efficacious as the United Mine Workers of



EMPLOYEES' GARAGE AT PRIMERO, COLO.

America in bettering conditions, Mr. Gilday replied that he did not.

"If," he said, and smiled—"if, mind you, the men of the mines were allowed untrammeled choice in the choosing of their representatives to the 'welfare' conferences, such delegations might in time replace the 'pit committee' of the organized mines. I am not saying that the men of the mines are not allowed their free choice of delegates. They probably are, but it is only natural that their free choice should coincide with the choice of some mine official. Not through any coercion on the part of the official—I don't mean that; but unconsciously, without thinking of it, the miner will almost instantly recognize the man preferred by the officials and will vote for that man. It's human nature.

"So I am firm in the belief that the 'pit committee' will accomplish more for the men than the delegation to such conferences. If I wanted a man to truly represent me in an argument, I had rather pay him myself. He would be much more apt to get my side of the matter before my opponent than if he were paid by the other party. Don't you think so?"

The first illustration in this article shows Antonio Christoff, a miner employed by the Colorado Fuel and Iron Co. at Ideal, taking a spin with his friends in his own motor car. The men, it will be noted, all have acetylene mining lamps on their caps. The second illustration shows a typical garage of the Colorado Fuel and Iron Co., the rent of each stall being \$1 a month.

#### Recent Legal Decisions

**Lessee's Obligation To Support Surface**—A clause in a mining lease binding the lessee to careful and skillful mining relates only to the manner of working the coal and imposes no duty on the lessee to support the surface of the land. (Pennsylvania Supreme Court, Miles vs. New York, Susquehanna & Western Coal Co., 95 Atlantic Reporter, 397.)

**Unsafe Mine Roofs**—A miner assumes risk of injury naturally incidental to his work of removing pillars of coal which support the roof of his own room. A miner's duty to keep his working room safe may rest upon a general custom of the mine known to him. (Colorado Supreme Court, Rossi vs. Calumet Fuel Co., 151 Pacific Reporter, 935.)

**Right-of-Way for Mining Roads**—When a deed grants or reserves a right-of-way across land for mining purposes, but does not define its location, it becomes defined by its location on the ground by the holder of the privilege with the consent of the other party. (United States District Court, Northern District of Alabama, *in re* Oak Leaf Coal Co., 225 Federal Reporter, 126.)

**Warning Against Danger of Remaining at Work**—An operator is not liable for death of a miner resulting from fall of slate where the roof was in an obviously dangerous condition and he was repeatedly warned of the danger just before the accident. (Virginia Supreme Court of Appeals, Lawrence's Administrator vs. Huettel Coal and Coke Co., 86 Southeastern Reporter, 151.)

**Violation of Operator's Rule as Contributory Negligence**—There can be no recovery for injury to a miner resulting from his disobedience of an established rule of his employer designed to promote his safety, if compliance with the rule would have avoided the accident. (Virginia Supreme Court of Appeals, Asbury's Administrator vs. Virginia Iron, Coal and Coke Co., 86 Southeastern Reporter, 149.)

**Injury Caused by Incompetent Fellow Servant**—If injury to a mine employee while working on a track, through being struck by a trip of cars negligently operated by a fellow servant, can be attributed to incompetency of the latter and carelessness of the operator in retaining him to operate cars, the operator is liable. (Virginia Supreme Court of Appeals, Stanberry vs. Virginia Iron, Coal and Coke Co., 86 Southeastern Reporter, 130.)

**Scope of Employment**—An employee who volunteers services beyond the scope of his employment, as where an assistant boss driver at a mine assisted in repairing a trip wreck and was killed by contact with an electric wire, assumes the risk of injury, unless the services were accepted under such circumstances as to warrant an inference that they were authorized by a superior. (Alabama Supreme Court, Quinton vs. Republic Iron and Steel Co., 69 Southern Reporter, 604.)

**Contracts with Corporations**—A coal-mining corporation is bound by a contract made by its secretary and approved by its treasurer employing a firm of engineers to survey the company's lands, although the contract was not formally authorized by the board of directors, the secretary and the treasurer constituting a majority of the board and owning four-fifths of the company's stock. (Virginia Supreme Court of Appeals, Meem, Haskins & Mitchell vs. Big Ax Pocahontas Coal Co., 86 Southeastern Reporter, 118.)

**Effect of Mine Foreman Law**—When the owner of a Pennsylvania mine knows of the existence of conditions hazardous to his employees and of the mine foreman's failure to perform his duties in safeguarding the lives of miners, it is his duty to remedy those conditions; and if he fails to do so he will not be permitted to escape liability for injury resulting to an employee on the ground that the accident followed negligence of the certified mine foreman. (Pennsylvania Supreme Court, McCollum vs. Pennsylvania Coal Co., 95 Atlantic Reporter, 380.)

**Assumption of Risk by Miner**—In a suit for death of a miner who was struck by a runaway car in a mine, it is held that if an operator equips cars with stopping devices such as are commonly used in similar mines, an employee assumes all risks of injury arising from the method under which cars are handled to his knowledge. Hence decedent assumed the risk of injury resulting from the fact that the runaway car was not equipped with a brake. And when an operator has furnished appliances commonly used in other mines, he is not liable for injury to one employee caused by negligent use of such appliances by a fellow servant, under the Virginia law. (Virginia Supreme Court of Appeals, Cruise's Administrator vs. Clinchfield Coal Corporation, 86 Southeastern Reporter, 135.)

## Discussion by Readers

### Handling Explosives in Mines

*Letter No. 5*—Since reading the editorial that invited discussion on this subject, *Coal Age*, Vol. 7, p. 937, I have seen but four letters published, and as it is an important matter, I desire to add a few words to what has already been said.

In Letter No. 3, Nov. 6, p. 769, Robert Gibson describes a system of distributing the explosives used in a mine where the miners all leave their powder on the tipple for the drivers to bring in to them. This would seem to me a very bad practice, which I believe is prohibited in some states. In my opinion it is an unsafe plan to handle any kind of explosives and transport them into the mine when the latter is in operation.

This recalls to my mind an accident that occurred in the mine where I once worked. It was the custom there for the miner to order his powder in 25-lb. cans at the store, and the explosive was delivered to the mine in a wagon. Not only did the driver handle the powder roughly but the topman used no precaution whatever in sending it down on the cage. The powder to be sent into the mine was thrown into a car and lowered on the cage. It had to be removed from the car at the shaft bottom, since it was a rule in that mine to permit only one keg of powder to be hauled into the mine at a time. Electric motors were employed to haul the trip to and from the shaft bottom.

#### POWDER EXPLODED BY ELECTRIC SPARK

On the occasion I mention, a new bottomman, not knowing this regulation, sent in seven kegs of powder in a single car. One of the kegs may have been cracked by the rough handling it had received, but a spark probably caused by the motor ignited the powder, and the motorman, triprider and mine boss were severely burned.

The rule restricting the quantity of powder to be sent in on a single trip showed that the mine officials realized the danger of handling the powder, but thought that there was less chance of accident when one keg was transported at a time. After this accident they sent the powder into the mine at night and took the additional precaution of locking the electric switch and giving the key to the powder man so that the current could not be turned on by accident or otherwise while the powder was being taken into the mine.

I will endeavor to outline briefly the method commonly used in Kentucky mines with which I am familiar, having worked in no less than 16 different mines in this state. The coal is generally cut by machine to a depth not exceeding the height of the coal. There is no solid shooting. The entries are 10 ft. wide, while the rooms are driven from 22 to 24 ft. in width. Three holes are drilled in the face of a room, and the center hole is fired with a light charge of powder, while heavier charges are used in the rib hole. The coal is snubbed to a depth of half the cut by the machine, so that it will turn over more readily when the shots are fired.

I am sorry to say that the companies do not furnish clay or any other incombustible material, and as a result the shots are tamped with fine coal and dust. Squibs are used to fire the shots, which I consider a bad practice, but one that it is hard to induce the miners to abandon. Although several good miners have been killed, the accidents occurring one at a time have not impressed the miners with the need of a safer method of blasting. I know of no mine that has given the permissible explosives a thorough test. As a rule the miners are opposed to the use of permissibles, although in some nonunion mines permissible powder is used to a certain extent. Electric shotfiring is not used in any mine in this section to my knowledge.

#### DANGEROUS WAYS OF TRANSPORTING POWDER

Different companies adopt various ways of transporting the explosives from the magazine on the surface to the working face in the mine. In some places the miner carries a 25-lb. keg of powder into the mine on his back, while at others the miner leaves his order for powder at the office at night and finds it at his box the next morning.

One company decided to permit but one day's allowance of powder in the mine at a time. It built a house on the surface and fitted it with small lockers that were just large enough to hold one keg of powder. Each miner was obliged to fill his "jack" from the keg in his locker in the house and could not carry more than two quarts of powder into the mine at a time. The men, however, refused to carry the jacks into the mine, and a three months' strike resulted in the company's filling the jacks with powder and sending them into the mine at night.

In closing I want to say that I do not approve of tamping shots with coal dust and am strongly in favor of permissible explosives wherever the conditions are favorable for their use. I believe they could be used in this field to advantage if the men and companies would cooperate in adopting them.

OSTEL BULLOCK.

Cleaton, Ky.

### Mining by Concentration Methods

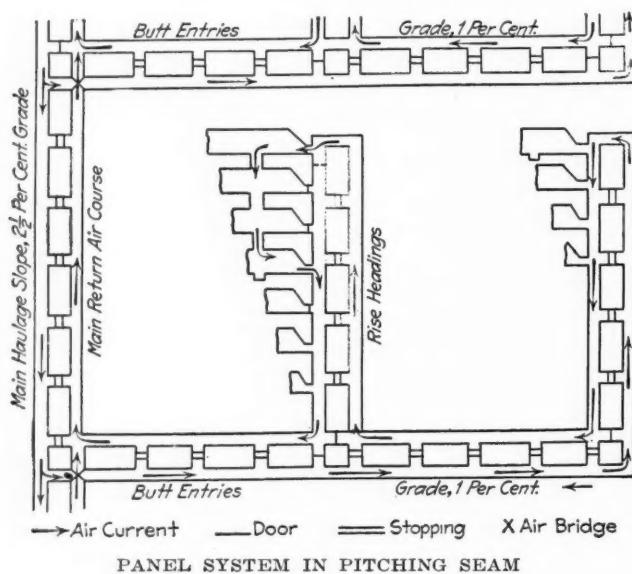
*Letter No. 1*—In conversation with a friend a short time since reference was made to W. H. Howarth's article on this subject, *Coal Age*, Jan. 15, p. 125, and I remarked that the H. C. Frick Coke Co. was recovering 95 per cent. of its coal as the result of good operating methods.

In speaking of mining methods designed to reduce the cost of production by securing the largest recovery of coal at the least expenditure of labor and capital, I want to say that the plan of mining must be adapted to the particular conditions in the mine. It is a comparatively easy task to draw on a sheet of paper a plan that promises a large recovery of coal. However, though practical mine foremen have no trouble in producing good results under

favorable conditions, it must be remembered that the conditions differ in almost every mining district. In the operations referred to in Mr. Howarth's article the coal is high, and where a miner is not able to push his car to the working face a mule can be employed for that purpose. But here in Somerset County the coal is low, and the miner is obliged to push his cars to the face of his room, besides dropping them down to the heading, where they are gathered up by the motorman and hauled out the slope.

#### LARGE EXTRACTION OF COAL IN PANEL WORK

I have drawn a sketch that represents typical conditions in mines in Somerset County, where the seam often dips from 2 to 5 per cent. and butt entries are driven off the main haulage slope on a grade of 1 per cent. in favor of



the loaded cars. As shown in the figure, headings are then driven to the rise of each pair of butt entries at convenient distances apart, which enable rooms to be driven on the strike of the seam as indicated in the figure. Barrier pillars are left of a sufficient thickness to protect the butt entries. This method divides the seam into panels, and each panel is ventilated by its own air split.

Not only does the method result in a large extraction or recovery of coal and facilitate the handling of the cars by hand in the rooms, but it also concentrates the work of mining, and this is a most important matter at the present time. It is generally believed that at the close of the war in Europe there will probably be a shortage of men in the mines of this country, while the demand for coal will be increased. Consequently it is important that coal operators give particular attention to those methods that will increase the daily output of coal per man.

At the present time two men working together will produce from 10 to 12 tons of pick-mined coal per day. To increase this individual output, the method has been adopted of working the men singly, and it has been found that by this means a good miner can load from 7 to 8 tons of coal per day. To expedite the work of each miner, a good mine foreman will not compel his men to lose time by requiring them to shift their own cars when there is an urgent demand for coal.

JOHN MAJER.

Listie, Penn.

#### Purchase of Coal in the New York Market

*Letter No. 1*—In reply to the request of *Coal Age* that I discuss the problems relating to the purchase of coal in the New York market, permit me to submit the following:

Definite specifications incorporated in any contract governing a commercial transaction are feasible and practicable only in so far as the conditions imposed are equitable to both parties. The sale of any commodity implies that the purchaser has secured something he desires. The enforcement of specifications simply guarantees to the purchaser the delivery of his purchase in accordance with the terms of the contract.

When the commodity is necessarily not homogeneous—the quality liable to certain variations—the specifications to be equitable must take into consideration the fact that the consignment may be better or worse than that called for, and provisions must be made to value fairly the variations that may arise. This is ordinarily and logically accomplished by an arrangement whereby bonuses are paid to the seller, should the quality of the consignment exceed that specified, and penalties imposed on the seller, should the consignment fall below the specifications.

#### DIFFICULT TO SPECIFY A FIXED BASIS OF BONUSES AND PENALTIES

Purchasing coal under rigid specifications, on a B.t.u. basis, is naturally controlled by these universal and self-evident conditions. The practicability of enforcing specifications for this commodity, however, is complicated by the difficulty of arriving at an equitable basis for both bonuses and penalties. The object of specifications is to protect both the buyer and the seller. Mutual protection is necessary for an equitable arrangement, and only such an arrangement can be both feasible and practicable.

The practice of purchasing coal on a B.t.u. basis has been suggested of course by the desire for economy. The buyer wants to secure for his investment as much if not more, than he could realize under the former universal practice of buying simply by weight. If he is required to pay a heavy premium for the privilege of specifying the exact grade of coal wanted, that privilege loses much of its attractiveness. On the other hand, the dealer must at least cover expenses, and coal being a commodity that is liable to more or less variation in quality, he must demand payment for the risk he is forced to assume by the guarantee given. This risk and the added expense entailed in conducting the tests necessary to ascertain the heating value of the coal, etc., constitute an extra burden added to the ever-increasing cost of mining the coal. In New York City, at least, this burden must be assumed by the purchaser, for the average profit to the dealer from the sale of the coal he handles is not sufficient to cover any additional expenses.

The purchase of coal on a B.t.u. basis, in New York City or elsewhere, is feasible and practicable, therefore, only on the condition that the purchaser of coal is willing to pay a higher price for his fuel. He has the expectation of thus guarding against the possibility of being imposed upon by an unscrupulous dealer and protecting himself against the natural variation in heat value possible in any coal deposit.

Trade conditions in New York City, while governed by the foregoing generalities, are further complicated by certain local considerations that cannot fail to increase the price of coal to the average purchaser, whether he buys on a B.t.u. basis or otherwise.

At the present time there are in force or proposed in New York two absolutely dissimilar sets of specifications for governing the purchase of coal. Their existence has been made possible by the deplorable conditions in the coal trade. One of these sets of specifications recognizes the fact that any consignment of coal is not quite uniform in heating value and that no two consignments are exactly similar, even though taken from the same mine and prepared for the market with equal care. Allowance is made for a certain degree of failure to meet specifications, without imposing penalties, and bonuses are provided for values in excess of the specifications. The penalties and bonuses are figured at the same rate, and the allowable variation recompenses, in part at least, for the expenses incurred in conducting the necessary tests and for the risk assumed by the dealer in guaranteeing his coal.

The second set of specifications admits of no variation in the quality of the coal, increasing the dealer's risk in his guarantee, while inflicting double penalties for certain failures to meet specifications, and offering bonuses that are obtainable only when certain penalties have not been contracted. In defence of this second class of specifications it must be stated, however, that certain coals do reach the New York market that would never, or very rarely, be penalized and which could safely be guaranteed without incurring undue risks. Furthermore, these specifications are not proposed so much from the standpoint of equitable arrangement as affording protection against the possibility of imposition by unscrupulous dealers attempting to sell a poor grade of coal. These specifications are virtually a club by which the dealers who cannot be relied upon may eventually be driven from the city.

#### CONDITIONS PECULIAR TO THE NEW YORK COAL MARKET

New York City is peculiarly situated as a coal market, else the advisability of the second class of specifications would be even more questionable than it is at present. Great consignments of all grades of coal naturally gravitate to New York, both on account of its location and the importance of the market. Unfortunately for the trade, much of the poorer grade of coal that reaches tidewater is consigned to dealers who have no adequate storage facilities, and this coal must be disposed of immediately or the dealer will contract heavy demurrage charges. The same is true of better grades of coal, of course; but it is the poorer coals that have created dissatisfaction and led to the popular interest in the B.t.u. basis of purchase.

The unwillingness of dealers to sell coal on a B.t.u. basis is only natural and is due to several reasons. In the first place they buy their coal from the mines by weight, not on a B.t.u. basis, though they know pretty well the specifications of the coal they handle and its general quality. They have keen competition to meet and cannot afford to invite the possibility of a penalty by guaranteeing something over which they have no absolute control. Dealers also contend that no sample, however carefully selected, is necessarily typical of the mass of coal. This is unquestionably so and often results in doing injustice and causing ill feeling between the purchaser and the dealer. Even though both should go to the expense of mak-

ing analytical investigations of the coal, their results very likely would not agree, as neither test might be truly typical. One of the parties therefore would have contracted an unnecessary expense, and if the coal was accepted by the purchaser, somebody would have to lose money. If it is the dealer, he would probably have sacrificed his profit on the transaction, or even actually entailed a loss; if the purchaser, he would have paid more for his coal than he had expected, although he received a somewhat better grade than he required, for in addition he would have paid a premium for the risk he forced the dealer to assume.

The reform in the coal trade at which the scientific purchase of coal on a B.t.u. basis is aimed must, like almost any reform, produce at first a considerable hardship to both the consumer and the dealer—a condition that cannot be avoided and must be endured until the mines, as well as the dealers, are compelled to sell their coal on a B.t.u. basis. Even then, the consumer will have to pay the cost of appraising the coal. At the present time, economy and satisfaction to the New York consumer can probably be best secured by dealing as he has in the past. This will not hasten the reform, it is true, and is perhaps a selfish attitude, but it will probably result in less dissatisfaction and an actual economy for some time to come.

#### ADVANTAGE OF LARGE STORAGE CAPACITIES

The reliable coal dealer in New York City who has adequate storage capacity, not only can be relied upon to make deliveries when needed, but usually stores coal in sufficient quantities to be able to duplicate previous shipments at any time with approximately similar coal. Furthermore, such a dealer is not apt to stock coal that he cannot readily sell, and in this way his customers are well protected against imposition. Compelling such a dealer to guarantee his coal by the adoption of a B.t.u. system of purchase will mean less satisfactory rates, for the burden imposed on the dealer must be borne by the customer. Going into the highways and byways in search of cheap coal invites impositions, and in such a case the B.t.u. basis of purchase may prove advisable, although it perforce increases the price.

The consumer who has been buying of a reliable dealer can almost invariably count on a fair and equitable adjustment of any controversies, no matter what system of purchase is practiced, and a change to another basis of payment can only result in more or less distrust. Mutual satisfaction in the past tends toward similar relations in the future.

REGINALD TRAUTSCHOLD.  
New York, N. Y.

#### The Miner and "Safety First"

*Letter No. 2*—Being an advocate of "safety first," I was pleased to read the letter of Edward H. Coxe, *Coal Age*, Feb. 5, p. 262, on this subject. I have always tried to show the miners in my district the safest way to do their work. I realize that one who sees the dangers to which miners are exposed every day knows better what laws and regulations are needed to make mining safer than the men who make these laws.

I have advocated for some time the need of employing shotfirers in all mines, and I would like to see this matter thoroughly discussed in *Coal Age*. By "shotfirer" I do

not mean a man whose duty it is to touch off the fuse, as that would be almost as bad as having no shotfirers at all. In my opinion the shotfirer should load and fire all holes drilled by the miner and should be authorized to refuse to fire any holes that in his judgment are unsafe.

To illustrate this need let me cite an instance in my own experience. In a certain mine where the roof was bad, much trouble was experienced in keeping up the roof slate at the face of the coal. I argued that the miners placed their shots too close to the roof. They would start the hole 12 or 14 in. from the roof and range it upward so that the force of the shot broke the roof and did poor execution in the coal. For some time the foreman tried in vain to teach the miners that they must place their shots lower in the coal.

#### A FORTUNATE BREAKDOWN

However, it so happened that one of the boilers gave out in the power house, and as a result there was not steam enough to operate the cages in the hoisting shaft, the mining machines and the locomotives at the same time. The superintendent placed the matter before the miners, and it was finally agreed that all holes should be fired by shotfirers after the machines had cut the coal at night. The miner was to leave a cartridge showing how much powder he thought should be used in each hole, but it was agreed that if the shotfirer thought this was too much powder or if he considered the hole was not properly bored, he would use less powder or not fire the hole.

After two months' time the boiler was replaced, and by agreement the shotfirers were then to be withdrawn. The mine committee, however, went to the superintendent and offered to continue the agreement of paying one-half the expense of the shotfirers if the company was willing on its part to pay its share of the expense. The superintendent agreed to this arrangement, provided he would have the right to hire and direct the work of the shotfirers, to which the miners readily assented.

#### NEW ORDER TO REGULATE BLASTING

As a result of this agreement the superintendent at once posted an order which stated that no more holes would be fired when drilled within 6 in. of the roof or where there were not four posts set within 6 ft. of the face in each room. In less than one month the fall of slate had been so reduced that the expense of employing men to handle rock at the face was cut enough to pay the company's share in maintaining the shotfirers. Moreover, in a single year the accident list was reduced 75 per cent. The entire cost of the shotfirers to each miner amounted to less than 75c. a month. The miners were greatly pleased, because when short of coal they did not have to wait until firing time, but could go home when they pleased.

My reason for claiming that the shotfirers should only load the holes and not fire them is best illustrated by an incident that happened while I was digging coal in a mine where the coal was shot off the solid. On going into my neighbor's room one day just after the assistant foreman had gone through our places, I found my friend preparing to shoot a hole he had drilled 6 ft. on the solid. Although he had told the assistant foreman that he was going to mine the shot to a depth of 3 ft., he stated that he was sick and wanted me to shoot the hole for

him at firing time. On my refusal to do this and explaining to him the danger of firing the shot, he told me I was the only one in the mine that knew he was going to shoot on the solid, and if there was trouble about it he would see that my union card was taken from me.

Not wishing to lose my position, I decided to say nothing about the matter. A little later the fellow got a negro, who had only been in the mine a short time, to promise to fire the shot and at once left the mine. I studied over the matter the rest of the day and, concluding not to fire my own shot, went home before firing time, though I felt like a sneak for leaving my fellow workers without warning them of their danger. Knowing, however, how each man hated a "snitcher," I hurried out of the mine.

That evening, anxious to learn the result of the shot, I hastened downtown and was not surprised to find that the old negro was severely burned and all the men on that entry were well shaken up. They were wondering who set off the shot, and though I kept my mouth closed, I have since often thought that if those men had been killed, the blame would have rested on my shoulders. I decided then and there never to act the same way again, as I could make money in any coal mine, should I lose my place by giving warning to those in danger.

No shotfirer would have loaded such a hole. The incident shows clearly that a shotfirer may fire a hole, not knowing of its nature or realizing his danger in so doing.

#### AN INTERESTING INCIDENT

I recall firing a shot myself for a fellow one night. The hole appeared all right and the shot seemed to be prepared in a workmanlike manner, as far as I could see. Fearing no trouble, I lit the fuse and started for the crosscut, which was not over 40 ft. away. I had no more than reached the place when a blast of smoke and flame swept over me. I was thrown down by the force of the blast, which tore down two brattices. It was a "windy shot," and I could not understand what had caused it, until the fellow told me a little later that he "hung the cartridge about halfway back in the hole." After trying to remove it, he decided to shoot it out and rammed a dummy cartridge about 8 in. long into the hole. He cut the fuse in two, leaving but 16 in. protruding from the coal.

I did not report the matter to the boss, but the fellow and myself were haled to court the next day, where we each told the story, which the boss heard. Thus I escaped being dubbed a "snitcher." Again, I say if a shotfirer had been employed in this case only to light the shot without loading it himself, he would have lit the shot with the same result.

I could tell of many more reckless and dangerous things that I have seen done in the mine, but I hope that this discussion will interest mine officials and lead them to adopt measures and enforce rules that will greatly reduce the dangers of blasting. I hope to see it proved by the experience of men that the employment of shotfirers is not an added expense in the operation of a mine.

Cleaton, Ky.

OSTEL BULLOCK.

Note—Contributors to the discussion and inquiries departments of *Coal Age* are reminded that it is absolutely necessary that the name and address be given, which, however, will not be published when the article is signed with a *non de plume*.

## Inquiries of General Interest

### Purchase of Coal in the New York Market

Recently I have been turning over in my mind the question of whether or not it is feasible and practicable to purchase coal on a B.t.u. basis from reliable dealers in New York. In fact, we have had the matter under advisement for a considerable length of time, with a desire to make a thorough investigation before coming to a decision. I would greatly appreciate the opinion of *Coal Age* on this question.

In the purchase of coal in this market we continually meet with the difficulty that large companies of reputation, which can be absolutely relied upon to make deliveries whenever or wherever needed, claim that they "control the output of certain mines and know the product to be good," and for that reason are unwilling to sell the coal on any basis except that of weight. They argue that inasmuch as the dealers here buy their coal from the mines by weight they cannot afford to deal with purchasers on a B.t.u. basis. I believe this question is one of great importance and cannot fail to be of interest to *Coal Age* readers, and for that reason I hope to see it thoroughly discussed by those whose opinions are of value.

CONSUMER.

New York City.

The subject to which this correspondent has drawn attention is indeed one of great importance. With the desire to secure first-hand information that would be reliable, we submitted this inquiry to one whose experience renders him capable of giving just the information asked. We are publishing his reply as Letter No. 1, in the Discussion Department, page 338 of this issue, and hope that others will take up the discussion and give the readers of *Coal Age* the benefit of their views and experiences.

We regard the letter of Mr. Trautschold as a carefully prepared review of a situation worthy of the closest study and investigation. The question is a many-sided one, and its nature warrants a broad-minded and frank discussion by the advocates of the B.t.u. basis for purchasing coal. It is a grave question whether this method, which is a well-established one with large consumers of coal, can be eliminated with safety.

The question may be asked, on the other hand, how are large dealers, whom our correspondent describes as being reliable and trustworthy in the matter of large prompt deliveries, to be protected from the results that might naturally arise as the result of buying coal from the mines on a basis of weight and selling it to the consumer on a B.t.u. basis? The adoption of such a method by dealers would place them in the position of guaranteeing a constant quality of the product of the mines they control. It would seem, however, that in order to satisfy their large regular customers these dealers should make frequent and careful tests of the heating value of the coals they handle, so that their assertion that they know

the coal to be "good" could be substantiated by the records in their office.

In this connection we would refer our readers to an excellent article on the "Value of Coal Analyses," by Percy N. Coupland, *Coal Age*, Vol. 7, p. 1111. An article describing the new specifications for the purchase of coal by New York City, *Coal Age*, Vol. 8, p. 132, will also be of interest.

¶

### Two Questions in Coal Mining

I would like to ask through the columns of *Coal Age* for practical answers to the two following questions:

(a) In case a fire has started in an entry and it has been decided to seal off the fire, which has gained considerable headway, where should the first stopping be built—on the intake or on the return? And what means should be adopted to supply the men with air while building the stoppings?

(b) It is desired to extend the haulage in a mine through a crosscut between two entries where the air is too strong to permit a curtain to be used. It is necessary, therefore, to place a good door in the crosscut. I would like to ask some of the practical readers of *Coal Age* to suggest a feasible method of hanging a trap door that will open either way and close again automatically. The door must be hung so that a strong current of air will not force it open, and yet a mule will be able to push it open from either side. It seems to me that there should be some simple, inexpensive way of doing this, and I shall greatly appreciate any suggestions that will lead to a solution of the problem.

OSTEL BULLOCK.

Cleaton, Ky.

(a) The first question asked by this correspondent was made the subject of a lengthy discussion by practical mining men some time since. At that time there were published in *Coal Age*, Vol. 1, pp. 553, 583, 617, 649, 32 letters on this subject giving expression to a wide range of opinion among men of experience in coal mining.

While there were a large number of these men who favored building the first stopping on the intake airway, the best arguments advanced favored a study of the conditions, and recommended the building of the first stopping, if possible, on the return airway, which it was claimed would have the effect of shutting off the air passing over the fire just as effectually as when the first stopping was placed on the intake.

It was also claimed that the former method had the advantage of confining the products of combustion to the area of the fire, while the air and gases expanded by the heat of the fire would force back the intake air from the region of the fire. This we believe to be the best method to follow, although there may be cases where it will be necessary to erect the first stopping on the intake.

(b) This is an interesting question asked by the correspondent, and we hope it will bring forth some suggestions from practical mining men that will be of value.

## Examination Questions

### Mine Bosses' Examination in Indiana, January, 1916

(Selected Questions)

*Ques.*—(a) Give the essential features of a safety lamp for general work and for testing purposes. (b) Which one would you prefer to use and why?

*Ans.*—(a) The essential features or requirements of a good lamp to be used at the working face are as follows: The lamp should give a good steady light that is well diffused, so that the miner can inspect both the roof and the floor where he is working without greatly inclining the lamp from a vertical position. The oil used in the lamp should be free from impurities that quickly incrust the wick and impair the light; also the circulation of air passing in and out of the lamp should be sufficiently free to avoid the undue smoking of the flame. The combustion chamber of the lamp should be surrounded by a strong glass and surmounted by a gauze chimney properly protected against strong air currents or blasts of air. The feed air should enter the lamp at a point below the flame, which insures a better circulation and improves the light. The lamp should be simple in construction and composed of few parts, which should be assembled in such a manner that none of them can be accidentally omitted when putting the lamp together. The lamp should be provided with a good lock or seal that will show any attempt to tamper with the same.

For testing purposes the lamp should be designed to detect small percentages of gas in a manner that the percentage can be accurately measured for the purpose of comparing the observations of different firebosses. No two firebosses estimate the percentage of gas on the same basis, and as a result there is a great discrepancy in observations made under the same conditions by different persons. A simple device such as the sight indicator, or other means affording a fixed standard of measurement, should be used by all firebosses so as to bring their reports to the same standard of measurement.

The testing lamp should afford a good circulation of air, which should enter the lamp at a point below the flame, thereby providing ascensional ventilation in the lamp. The free circulation in a testing lamp minimizes the danger of a possible light explosion of gas within the lamp. A restricted circulation, and especially a restricted outflow of the products of combustion at the top of the chimney, will often cause the accumulation of a highly explosive mixture in the top of the lamp upon the entry of fresher air from below. The resulting explosion in the lamp may force the flame through the protected openings and cause disaster. A free circulation of air within the lamp, as just described, is necessary in order to insure the same gaseous condition within the combustion chamber as that surrounding the lamp, which is an important requirement for testing for gas.

A good testing lamp should burn the best quality of sperm or cottenseed oil, in preference to a volatile oil,

as the latter volatilizes more rapidly as the lamp becomes heated when exposed to gas. The indications of such lamps are variable and unreliable. The lamp should be as light and strong as it is practicable to make it.

*Ques.*—In the event of a mine fire, what precautions would you take to protect the workmen employed in extinguishing the same?

*Ans.*—To insure the greatest safety, all persons should be withdrawn from the mine except those engaged in the work of extinguishing the fire. The fire must be approached on the intake side so as to avoid the danger of the men being overcome by the smoke and poisonous gases produced. Having approached as near as practicable to the seat of the fire, a stopping should be torn down at this point so as to short-circuit the air and reduce the quantity passing over the fire. A brattice should then be extended from the outby corner of this crosscut forward in the direction of the fire, thereby providing fresh air that would enable the men to approach closer to the seat of the trouble. Further procedure will depend on the nature of the fire and the headway it has gained, also the amount of gas being generated in this portion of the mine. Experience alone will dictate the method of attack to be adopted when extinguishing the fire or in sealing off the place when no other means is practicable.

*Ques.*—In the event of an explosion, how would you proceed with the rescue work and what orders would you give the men in your charge?

*Ans.*—The location and character of the explosion can alone determine the most practicable means of rescue. Where the force of the explosion has extended throughout the mine, the work of rescue must be started from the surface, by issuing a call for volunteers and selecting therefrom those whose physical condition and experience render them best fitted for the work. The rescuers must be organized and led by an experienced man who is thoroughly acquainted with the mine. They must be equipped with the most approved breathing apparatus available, safety lamps, tools and other supplies required for the work in hand.

The rescuers should be divided into two or more squads—one party to investigate as far as practicable in advance of the others, who are engaged in making necessary repairs to reestablish the current of air in the entries and transporting the necessary material as needed and rendering any other assistance required. Before entering the mine, the ventilating apparatus must be examined to see that it is still working and furnishing the air necessary for ventilation. The rescuers must enter the mine by one of the intake openings and proceed with the air, making the necessary repairs to restore the air current and render the workings explorable. Strict orders must be given compelling the obedience of every man to the commands of the one in charge. All entrances to the mine must be carefully guarded and no one permitted to enter except those authorized to do so for the purpose of rescue.

## Coal and Coke News

### Harrisburg, Penn.

The Lehigh Valley Railroad Co., on Feb. 12, won the first point in its suit against the Interstate Commerce Commission to test the powers of this body under the Panama Canal Act, when Judges Buffington, McPherson and Woolley, in the United States District Court here, granted a preliminary injunction enjoining the Commission from enforcing an order made in May, 1915, preventing the complainant from operating the vessels of the Lehigh Valley Transportation Co. on the Great Lakes. The Court fixed Mar. 17 as the date for a final hearing of the controversy. Under the injunction the Lehigh company may operate its steamships, which have been tied up since last December.

The suit is the first one brought under the canal act, which was passed in 1912. This act provides that no railroad can have any interest whatever in any water line with which it does or might possibly compete.

After a hearing before the commission the latter decided that the railroad was in competition with the Transportation company, a corporation whose stock is owned by the railroad.

The principal contention of the complainant is that there is no competition between it and the Transportation company for the reason that its lines end at Buffalo and that the water line begins at that point and ends in Chicago.

Counsel for the Government asked the Court for a motion to dismiss the case on the ground that there is no need for the preliminary injunction, as the property of the water lines could not be used before Apr. 1.

Richard W. Barret, representing the Lehigh Valley company, however, pressed the preliminary injunction, maintaining that the complainant was suffering irreparable loss. In pointing out that the companies were not competitors and could not possibly be competitors, he stated that the water line was simply a continuation of the rail line. He explained that the company maintained through routes and joint tariffs and the differentials in the freight rates made the lake line a formidable competitor of railroads to the West and Northwest which had all-rail rates.

The Government contended that the railroads favored by the Lehigh Valley Railroad Co. in shipping their freight west from Buffalo by rail returned the favor by shipping freight east from Buffalo over the Lehigh company's boats, thereby controlling a freight rate and shutting out the competition of any individual steamship line that may begin business.

#### Labor Legislation Before Everything Else

Coincident with the preliminary steps to be taken by the anthracite miners to enter into a new agreement with the operators comes news of a strong movement to send to the next legislature members who will devote all their time and attention to labor laws. It is planned to elect at least 25 labor legislators from the hard-coal fields of Lackawanna, Luzerne, Schuylkill, Northumberland, Carbon, Columbia and Dauphin counties.

It is predicted that the campaign if waged will be the strongest ever carried on in the northeastern section of Pennsylvania. The slogan will be "labor legislation before anything else" and with this in mind, an effort will be made to subordinate municipal measures, local option and every form of party legislation to such proposed laws as may be advocated in the interest of the workingman.

As the preliminary election is scheduled for May 16, at a time when the operators and miners may still be negotiating on a new agreement, the mine workers' leaders believe that the opportunity for making suitable nominations by both parties will be a most propitious one. They are not unmindful of the fact that the hardest thing in the world is to induce labor to offer a united front in a political campaign.

A report that the coal companies are getting ready to fight Senator Catlin and Senator Beidleman, of Dauphin County, is responsible in a great degree for the decision of the mine workers to enter politics in earnest. These two Senators led the fight for the miners during the last legislative session in an effort to bring the miners under the terms of the compensation act.

It is the purpose of the miners' leaders to have President White and the former President John Mitchell tour the an-

thracite counties in support of the labor candidates. No apologies are to be offered for this unprecedented act, for it is felt that the rank and file of mine workers now realize that a hostile legislature might not only repeal the Catlin Bill, which brought them under the compensation act, but might also place upon the statute books acts detrimental to the welfare of miners.

#### PENNSYLVANIA

##### Anthracite

**Pottsville**—Twenty-two men were imprisoned for more than an hour at the Lytle colliery on Feb. 12, by a fall of coal in a gangway. All were finally rescued uninjured, but the interval of suspense was an hour of agony to the families of the men entombed. The miners did not know they were entombed until they started to go home, when the gangway was found to be blocked. They immediately began rapping and every available man at the colliery was put to work, as asphyxiation was feared. The entombed men were examined by physicians, but were found to be in good condition.

**Harleigh**—Skeletons of two miners killed by a cave-in in July, 1876, were discovered by employees of the G. B. Markle Co. on Feb. 10. The victims of the cave were Joseph Pearson and James Murish, middle-aged, married men with families, and both lived at Harleigh. At the time of the accident the men were working in the big vein and the small mine was being operated by Mordecai Cooper. A mountain of rock and clay dropped on the men and mine officials decided that it was useless to attempt to recover the bodies.

**Lansford**—In order to supply the power plants at Hauto and Freeland with fuel at the lowest possible cost the Lehigh Coal and Navigation Co. has about closed negotiations for all the culm banks in this territory. In order to economically fire this material beneath the boilers the company is installing a type of mechanical stoker which will dispense with 42 firemen.

**Shamokin**—When Frank Ross, fireboss, at the Susquehanna Coal Co.'s Scott Shaft, failed to reappear from the mine on Feb. 9, and report as to whether there was gas in certain portions of the colliery, a searching party was organized and found him dead. He had been asphyxiated by gas.

**Plymouth**—The Plymouth Co., which is erecting a washery at South Plymouth, will be ready for operation by Mar. 1. The washery will have a capacity of 150 to 175 tons daily.

**Wilkes-Barre**—By an explosion in Lance colliery of the Lehigh & Wilkes-Barre Coal Co. seven miners lost their lives recently. Desperate measures were undertaken to rescue the men, as the débris released by the force of the explosion dammed up the water and made it necessary to construct floats with which to enter the gangway. The disaster is among the worst that have happened in this region, and the officials are endeavoring to determine the cause, as they believed the mine to be practically free from gas. The theory advanced is that a pocket of gas was released by blasting and was set afire by a naked light.

At a meeting of the Red Ash Coal Co. held on Feb. 11 the board organized and elected officers as follows: President, G. F. Parrish; vice-president, John N. Conyngham; treasurer, Walter Roberts; secretary, William D. Jones.

#### Bituminous

**Culmerville**—Claiming the price charged them for powder was excessive, 900 miners employed here by the Ford Collieries Co. refused to work. The company claims that due to the war the cost of explosives of all kinds has risen much above the normal cost.

**Pittsburgh**—Industrial plants in the Pittsburgh district are storing coal as fast as it can be obtained from the mines. The United States Steel Corporation is storing immense quantities at Donora, Homestead and Braddock. At Monessen the Pittsburgh Steel Co. is stocking up, as is every other industrial plant in the Monongahela Valley. The Vesta Coal Co., a subsidiary of the Jones & Laughlin Steel Co., the largest independents in the steel industry, is storing barge after barge of coal. It is admitted by the coal operators that all will follow the lead taken by the Pittsburgh Coal Co. in dealing with the wage question, provided that no advance of 10 per cent. will be made on the run-of-mine basis.

**Somerset**—About 600 men employed at the Knickerbocker mines have been notified that they will receive an increase of wages. The advance will be similar throughout Somerset County.

**Connellsville**—The coke production of the Connellsville District for the week ending Feb. 5 amounted to 433,182 tons, or a decrease of 9,432 tons from the previous week. Shipments aggregated 420,686 tons.

**Johnstown**—Wehrum Mine No. 3 of the Lackawanna Coal and Coke Co. has begun shipping coal, after an idleness of 12 yr. An underground reservoir flooded the entire workings but the mine has been drained by putting in a new entry 1,100 ft. deep. A drillhole 40 ft. deep was always kept ahead of the working to prevent a surprise by flood.

To prevent explosions from open flame lamps, the Merchants Coal Co. has equipped its 400 miners at Boswell with storage battery electric lights, doing away with safety lamps. About a year ago 19 men lost their lives as the result of an explosion in this mine.

#### WEST VIRGINIA

**Moundsville**—About 125 men employed in the shaft coal mine of the Dollar Savings and Trust Co. were recently obliged to run for their lives when a mining machine cut into the casing of an abandoned gas well, with the result that the mine was flooded with gas for a considerable distance. Two men operating a mining machine struck this well, the machine bits piercing the well casing. Water and gas issued with considerable force and noise. The men put out their lights and immediately ran, one in either direction, warning the other men in the mine to get to the outside.

**Wheeling**—Thieves recently visited the Glendale mine of the Hitchman Coal Co., and when the officials of the company on the following morning attempted to operate their locomotive, it was found that more than 350 lb. of trolley wire had been stolen. This wire had been taken down from its hangers at the roof, coiled up and carried away.

**Huntington**—E. M. Hoffman, head of the City Employment Bureau, states that 1,000 men could be employed in and around Huntington. Calls for men are arriving continually at the employment bureau, and it is estimated that at least 1,000 men could be placed at the present time, as one firm, which mines coal and manufactures coke, is in need of 500 men at once, while another wishes between 200 and 300.

**Beckley**—Miners of the Pemberton Fuel Co. are dissatisfied with the administration of the Workmen's Compensation Law, and are already making preparations to demand its repeal at the next session of the Legislature. Nearly every man at Pemberton has signed an agreement to vote for no candidate for the Legislature unless he agrees to use all his influence to have the Workmen's Compensation Act repealed.

**Charleston**—Thomas Haggerty, a member of the international board of mine workers, announces that the agreement recently signed by Cabin Creek operators and the West Virginia Mine Workers will not be recognized by the international organization. The conduct of affairs in Districts 17 and 29, comprising the Kanawha and New River fields, has been taken over by the international body. As far as now known, however, its refusal to recognize the seceding miners and their new organization will not affect conditions in the Cabin Creek district.

**Fairmont**—M. G. Sperry, representing a bondholders' committee of the Four States Coal Co., has bought in the Annabelle, Dorothy and Ceredo mines of that company at public sale, on a bid of \$3,600,000, subject to confirmation of the bid by the county court.

#### TENNESSEE

**New Tazewell**—The Straight Creek mine, 6 mi. east of here, will resume operations in the near future, according to reports current here.

#### KENTUCKY

**Frankfort**—A thorough study of the extent, need and possibilities of timber for use in the mining industry in the Appalachians is to be undertaken this spring by State Forester J. E. Barton, in conjunction with the Federal Bureau of Forestry. They will be aided in this work by the mining companies of eastern Kentucky, the investigation dealing particularly with eastern Kentucky conditions. At the same time experiments will be made at Jenkins, Ky., in preserving mining timber, since certain kinds of wood must be treated. If these experiments prove successful they will make much timber otherwise unsuitable available for mine uses. Reforestation will be considered in connection with the other work and it is expected that a widespread planting campaign will be taken up afterward.

**Ashland**—The Kentucky Solvay Co., which is just completing a second unit of 54 ovens at its coke plant, has decided to add two more units immediately. Employees of the company who have been with it for a year or more have just been presented with checks for 10 per cent. of the amount of their salaries for the past year. The action of the company is said to have been a surprise to the men.

**Hazard**—The Hazard-Dean Coal Co. and the Daniel Boone Coal Co. are each making increases of several cars of coal a day. Orders have been placed for their entire product. Mining activity continues to increase in the Hazard coal fields.

**Harveyton**—The Harvey Coal Co. is making its first shipments of coal from its new operation, the coal being destined to the markets of the Great Lake region. Owing to slips and slides on the First Creek Branch road shipments were unavoidably delayed.

**Whitesburg**—It is announced that the South East Coal Co. will shortly begin the development of the George Hogg coal land tract at Roxana, Ky., below here on the Louisville & Nashville main line. A daily tonnage of 1,500 to 2,000 is proposed.

#### OHIO

**Lafferty**—The Old Virginia Hill Coal Co.'s mine at Lafferty, which was recently sold to the Cleveland-Belmont Coal Co., will shortly start operations. A force of men has been at work for some time cleaning up. When working full, this mine employs about 125 men.

**Athens**—The New York Coal Co. has taken steps to remove from the local court to the Federal courts the suits brought by a number of miners for damages alleged to have resulted from what are claimed to have been false arrests, growing out of the labor troubles of a few months back. Each man sued for \$10,000.

**Glouster**—It is stated that reports to the effect that Mine 254, at Jacksonville, is in an unworkable condition on account of falls and water, are inaccurate, and that while there is some water in the mine from old Mine 24, all of the workings can be reached. Falls which have occurred will necessitate the abandonment of some of the entries, but the mine as a whole will be continued in operation.

Reports from the W. P. Rice mine at Palos are to the effect that a fault struck recently will make it necessary to go 50 yd. through rock in order to reach the coal again. Mr. Rice intends to drive two entries through the rock, and has let contracts for that purpose.

**Columbus**—Quite a few operators in the Hocking Valley announce the closing of mines after April 1, in order to make necessary repairs. This will be done regardless of the results of the wage scale conferences now being held at Mobile. The feeling is spreading that there will be a cessation of work in many Ohio mines unless the wage scale is arranged before the expiration of the present scale.

A movement has been started in Ohio for the organization of an operators' association, including the present organizations in the eastern Ohio district, the Hocking Valley and the Cambridge district. There has been a need of a strong operators' organization in the Buckeye State for years, especially when the wage scale negotiations with miners are in progress, but every movement to organize such an association has failed. Some opposition to the present plan has developed.

#### INDIANA

**Brazil**—An accident to the mine cages recently occurred at the Clay County Block Coal Co.'s mine near Brazil, and the men say they will not return to work until a rigid inspection of this mechanism has been made by state inspectors. The accident occurred when the self-dumping cage tipped over part way up the shaft, killing one man and severely injuring two others.

#### ILLINOIS

**Edwardsville**—The mines in this district are so rushed with orders that they cannot get enough men to handle the business. Madison mine No. 2 at Glen Carbon is greatly in need of more men.

**Hillsboro**—The liability of a coal company for settling of the surface, due to removal of coal, was involved in the suit of Mrs. Clara B. Young against the Burnwell Coal Co., which occupied the attention of the Circuit Court here recently. Mrs. Young sued because three acres of her land settled, at places as much as 2 to 3 ft., and the depression filled with water, making it untilable. The coal company set up the defense that the plaintiff had sold the land. The Court held that the sale did not affect her right to recover damages if it could be shown that the price received was affected by the condition complained of. After the trial had continued three

days the company settled the case by paying Mrs. Young \$600 and her costs.

**Springfield**—Illinois coal production decreased 4 per cent. in 1915. The decrease is attributed partly to the increased use of hydro-electric power and partly to more efficient handling of railroad trains, whereby the number of trains is decreased and locomotives are fired more efficiently.

**Johnston City**—It is reported that the Black Brier mine of the Williamson County Coal Co., at Johnston City, Ill., has suffered from a squeeze of considerable size. A large accumulation of gas was set free, which necessitated the state mine examiner closing the mine for several days until the gas was fanned out. The mine has reopened and will soon be back to normal condition.

#### OKLAHOMA

**McAlester**—A movement has been put on foot here with a view to securing the necessary legislation for the sale by the government of the underlying coal and mineral rights to the segregated coal lands in Pittsburg County. At present only the surface of the segregated lands can be sold, the coal and mineral rights being reserved. These rights cannot be sold until Congress passes a law authorizing their sale, or lease. If such legislation could be secured, several hundred thousand acres of rich coal lands would be made available for development in this section.

Tellers for the election just held by the United Mine Workers of District 21, comprising the states of Oklahoma, Arkansas and Texas, announce that the following officers have been elected: President, J. G. Murray, Midland, Ark.; vice-president, John Wilkinson, Thurber, Texas; secretary-treasurer, E. F. Ross, Lehigh, Okla. Members executive board—T. J. McClure, Gowan, Okla.; Charles Vanducker, Lehigh, Okla.; Robert Boyd, Huntington, Ark., and Thomas Strongman, Thurber, Tex. Members conference committee—T. D. Clark, Krebs, Okla.; J. C. Jones, Gowan, Okla.; D. G. McSpadden, Fort Smith, Ark., and Jack Winters, Spadra, Ark.

#### PERSONALS

Edgar Cartright recently accepted a position as engineer with the Morris Run Coal Co.

John J. Wolfersperger, until recently superintendent of the Yampa Valley Coal Co., at Pallas, near Oak Creek, Routt County, Colo., is doing some prospecting in the same county.

Charles Cunningham, a geological expert and mining engineer, will in future make his headquarters in Charleston, W. Va., having moved his offices to this point from Huntington.

Fred. L. Swanson has resigned from the sales force of the West Virginia Coal Co. at St. Louis, Mo., to take the management of the mine of the White City Coal and Mining Co. at Norris City, Ill.

J. E. Hamilton, for the past three years mine foreman for the Rosemont Coal Co., has resigned his position to accept the superintendency of the Blue Ridge and Hero Mines, at Lumberport, W. Va.

Charles D. Ellis has been appointed local commercial agent of the Carolina, Clinchfield & Ohio R.R. and will open an office in the Pierce Building, St. Louis, Mo. Mr. Ellis was formerly connected with the Louisville & Nashville R.R.

S. A. McManigal has been elected president of the Maple Hill Coal Co., and will take up the duties of sales manager to fill the vacancy caused by the resignation of T. C. Collins. Mr. McManigal is a well-known figure in Ohio coal circles.

Harvey T. Maude, for some time in the engineering department of the Lehigh Valley Coal Sales Co. at Buffalo, N. Y., has been promoted to the position of salesman and placed in charge of the company's business in Indiana, succeeding Harry J. Knowles.

W. W. Inglis, general manager of the Pennsylvania Coal Co., has been appointed general manager of the coal mining department of the Lackawanna Railroad Co. A report circulated said a general shake-up in Lackawanna officialdom is about to take place.

T. B. Foust, of LaFollette, Tenn., furnace superintendent for the receiver of the LaFollette Iron Co., has been appointed manager for the LaFollette Coal and Iron Co., which recently took over the properties of the LaFollette Iron Co. and the LaFollette Coal, Iron and Railway Co.

B. F. Rice, consulting engineer for the Stearns Rogers Mfg. Co., Denver, and inventor of the screenless coal sizer (which on an installation near Crested Butte shows more than a 6% saving in breakage at that hard coal operation),

is making an installation at one of the Lehigh Coal and Navigation Co. collieries near Lansford.

E. L. Carpenter, president of the Black Hawk Coal Co., the Consolidated Fuel Co., the Panther Coal Co., and vice-president of the Castle Valley Coal Co., all of Utah, recently resigned his positions. Other resignations in the personnel of these firms include Leon Carpenter, superintendent of the Black Hawk Coal Co., James Carpenter, engineer of the above named companies, also the cashier and auditor of the four companies, Messrs. Schultz and Lambkin, while other resignations are expected. The four companies were recently united into one under the name of the United States Fuel Co. with C. W. Van Law as president.

#### OBITUARY

Peter Reeb, president of Reeb Bros., contractors and coal operators for 24 years, died at his home, 500 Centreville street, Belleville, Ill., recently, following an illness of 10 months, due to spinal trouble and a nervous breakdown.

Bryce R. Blair, aged 84 years, a prominent mining and railroad engineer, passed away at his home in Carbondale, Penn., on Feb. 11. Mr. Blair was born in Glasgow, Scotland, Sept. 21, 1832, and sailed for this country Sept. 14, 1852. He entered the employ of his uncle, Frank Blair, a contractor, then employed in the construction of the North Branch Canal. Afterward he was employed by the Lackawanna and Bloomsburg R.R. He remained with this company until the road was completed. In February, 1865, he became general manager of the Nottingham Coal Co. This company leased the Reynolds and other tracts in Plymouth Township. Mr. Blair sank the Nottingham shaft (now Nottingham No. 15 of the Lehigh & Wilkes-Barre Coal Co.) through 40 ft. of quicksand and built the original Nottingham breaker. In the erection of this breaker and sinking of the shaft not a single accident occurred until the coal was struck. He also sunk the Reynolds No. 16 shaft. He remained as head of the Nottingham company until 1869, when he became chief engineer for Fonda & Diven, and constructed the Jefferson branch of the Erie R.R., Lanesboro branch of the Delaware & Hudson R.R., the Huntington & Broad Top R.R. at Saxton, and later built the second track of the Lackawanna & Bloomsburg R.R. Mr. Blair in 1879 purchased the Wyoming Steel and Edge Tool Co., and for a few years operated this plant. Later he supervised the building of the Eagle Refinery of the Standard Oil Co. at Communipaw, N. J. In 1858 he was united in marriage to Emma J. Tubbs, of Shickshinny. To them 11 children were born, two daughters and nine sons.

#### TRADE CATALOGS

**Automatic Coal Conveyor Co.**, Old Colony Building, Chicago. Illustrated, 15 pages, 3½x6 in.

**Mesta Machine Co.**, Pittsburgh, Penn. "Mesta Barometric Condensers." Illustrated; 8 pp., 6x9 in.

**The North Western Expanded Metal Co.**, Chicago, Ill. "Chanelath." Illustrated, 43 pp., 6x9 in.

**Beaudry & Co., Inc.**, 141 Milk St., Boston, Mass. "Beaudry Hammers." Illustrated; 16 pp., 3½x6 in.

**S. C. Webb Co.**, Wilkes-Barre, Penn. "What Causes Delays in Hoisting?" Illustrated folder, 3½x6 in.

**Riverside Metal Refining Co.**, Connellsville, Penn. "Old Coketown Metal." Illustrated, 36 pp., 3½x6 in.

**The Scranton Pump Co.**, Scranton, Penn. Bulletin No. 106. "Triplex Plunger Pumps." Illustrated, 8 pp., 6x9 in.

**The Malcolmson Briquet Engineering Co.**, Chicago, Ill. "Malcolmson Briquetting Plants." Illustration, 26 pp., 9x11 in.

**The Main Belting Co.**, Philadelphia, New York and Chicago. "Leviathan Anaconda Belting." Illustrated; 63 pp., 8½x11 in.

**The Armstrong Cork and Insulation Co.**, Pittsburgh, Penn. "Nonpareil Cork Board Insulation." Illustrated, 151 pp., 6x9 in.

**The Enterprise Foundry and Machine Works**, Bristol, Va. Tenn. "Modern Mine Transportation." Illustrated; 23 pp., 6x9 in.

**The Lake Shore Engine Works, Marquette, Mich.** "How Do You Muck?" Illustrated folder of the Halby shovelling machine.

**The Brown Hoisting Machinery Co., Cleveland, Ohio.** Catalog D. "Brownhoist Tramrail Systems, Trolleys, Electric Hoists." Illustrated, 64 pp., 6x9 in.

**The Boynton Furnace Co.**, Chicago, New York, Jersey City. "Square Pot Heaters and Newport Ranges." Illustrated, 36 pp., 7x9 in.

**The Wheeler Condenser and Engineering Co.**, Carteret, N. J. "Steam Tables and Psychometric Tables." Illustrated, 56 pp., 4x6 1/4 in.

**The Union Steam Pump Co.**, Battle Creek, Mich. "The Union Centrifugal Pump." Bulletin No. 41. Illustrated, 35 pp., 6x9 in. Bulletin No. 23, "Mine Pumps." Illustrated, 12 pp., 6x9 in.

**Chris D. Schramm & Son**, Philadelphia, Penn., catalog No. 5, "Portable Compressed Air Outfit." Also catalog No. 10, "The Schramm Portable Compressor on the Job," Bulletin No. 155, "Schramm Compressor Pump Combination," Bulletin No. 220, "Rock Drills." Illustrated, 6x9 in.

## INDUSTRIAL NEWS

**Buffalo, N. Y.**—The Pittsburgh-Westmoreland Coal Co. is preparing to close its Buffalo agency. H. G. O'Brien has been the sales agent for some years.

**St. Louis, Mo.**—Mines on the Iron Mountain R.R. in southern Illinois recently suffered a stringent car shortage, some of them receiving cars but one day, owing to high water and washouts.

**Steubenville, Ohio**—The concrete bases for the new La Belle coke ovens have been completed and the work of construction is being pushed rapidly both day and night. The ovens will be in use during the coming summer, it is thought.

**Pittsburgh, Penn.**—The Safety First Department of the Colonial Supply Co. has been taken over by the Safety First Supply Co. The offices and display rooms of this firm are located at 1106-1107 Hartje Bldg., Wood St. and 1st Ave., Pittsburgh, Penn.

**Indianapolis, Ind.**—The Knox County Coal Co. was recently incorporated with a capital of \$25,000 to produce coal and coal products. The directors are H. A. Huskey, E. D. Logsdon, A. W. Coulter, Charles E. Freeman, John T. Oliphant, and William M. Zeller.

**New York, N. Y.**—The New York office of the Ohio Brass Co. recently removed to new quarters in the Hudson Terminal Building. This new office is in the same relative position as the old but is eight stories above it. The present location is 1822, Hudson Terminal, 30 Church Street.

**Pittsburgh, Penn.**—The Board of Directors of the United States Steel Corporation has authorized the expenditure of \$15,000,000 for the erection of one of the largest byproduct coke plants ever built. Land for the purpose has been purchased at Clairton, Penn., and the work of erection will be started in the spring.

**St. Louis, Mo.**—With the Arkansas mines practically out of commission, owing to rains and high water, the Kansas mines only partially recovered from the same trouble and all Missouri mines taxed to the utmost capacity, a considerable demand now exists for Illinois coal to supply the Kansas and Nebraska markets.

**Wheeling, W. Va.**—The Marling Coal Co. was recently incorporated with a capital stock of \$25,000. The incorporators are J. C. McKinley, Nelson C. Hubbard, B. C. Christy, L. W. Brown and H. B. Lockwood. This firm has also the right to engage in general lines of business in connection with the mining of coal and ore.

**Lexington, Ky.**—The holdings of the Mineral Fuel Co., the Elkhorn Fuel Co., the Elkhorn Mining Co. and the Elkhorn Fuel Corporation in the eastern Kentucky coal field, are being combined by interests said to have Rockefeller backing. Capitalization is said to have been effected through the issuance of \$9,000,000 of notes.

**Reading, Penn.**—Large shipments of coal continue to be offered to the Philadelphia & Reading Ry. in such volume as at times to add seriously to the general freight congestion. On one day the past week the anthracite collieries loaded 1,872 cars of coal, and in addition on the same day 1,952 cars of bituminous coal came to the company at its Rutherford yards, near Harrisburg.

**Martinsburg, W. Va.**—Considerable interest has been aroused throughout the Georges Creek mining region over the discovery of approximately 400 acres of big vein coal at Mount Savage. It is estimated that this tract will yield between two and a half and three million tons of coal. It was the general impression that the big vein had been worked out at this point.

**Monongahela, Penn.**—A rumor has received circulation in Monongahela that a new steel railroad-and-river tipple will be erected on the site of the old Garfield mine, just below Courtney. Engineers are at work in that vicinity. The new tipple at Black Diamond will be built, it having been authorized by the Pittsburgh Coal Co., which recently took over the holdings of the river combine.

**Pittsburgh, Penn.**—The Colonial Trust Co. of this city has foreclosed a \$7,000,000 mortgage against the Isabella-Cannelsville Coke Co. The trust account took this action on behalf of the bondholders, for whom it is acting as trustee, and the land comprising 45 tracts will be offered for sale on Mar. 6. The property is an asset of the former firm of J. S. & W. S. Kuhn, who failed in 1913.

**Wheeling, W. Va.**—The General Coal Products Co. has been incorporated with a capital stock of \$300,000. The incorporators, all of Wheeling, are John C. Arbenz, Nell Moran, E. E. Schaffer, John C. Palmer, Jr., and Frank W. Nesbitt. The firm has the right to engage in other lines of business such as operating railroads and steamboat lines for the securing of the coal products and transporting them to market.

**Beaver Meadow, Penn.**—The operators of the Evans Colliery have acquired a lease on a tract of land near their plant under which a valuable coal deposit lies, which they will begin immediate preparations to reach. Workmen are already engaged on sinking a new slope, which, when completed, will be equipped with modern electrical machinery and will greatly increase the output of the colliery. The new tract is owned by the Lehigh Valley Coal Co.

**Hopkinsville, Ky.**—Deeds have been recorded in the Christian County Court noting the conveyance of the mines and property formerly belonging to the Empire Coal Co. from Claiborne N. Bryan, etc., to John Hutton, of Shelbyville, Tenn., and G. Bibb Jacobs, of Nashville, Tenn. The Bryans acquired the property last September from the Empire company. It is estimated to be worth from \$30,000 to \$50,000 and is located in the northern part of Christian County, Kentucky.

**Washington, D. C.**—The Graves Coal and Coke Co., of St. Louis, recently filed a complaint against the Frisco, Chicago & Eastern Illinois and Illinois Central railroads, alleging the collection of unreasonable rates on shipments of coal from Duquoin, Ill., to Cape Girardeau, Mo., and reconsigned to Gideon, Mo. A rate of \$1.45 per ton was charged for the movement, which is charged to be 25c. per ton in excess of what would have been a reasonable rate. Reparation is asked.

**St. Louis, Mo.**—Director of Public Utilities Hooke has taken charge of a wooden dock at the foot of O'Fallon St., which has been leased to the city. Electric cranes are to be placed on it for transferring freight from tracks to boats and barges. A warehouse is to be erected. The temporary dock will be used until the permanent one is completed at the foot of North Market St. This is the first step in St. Louis toward the restoration of heavy traffic in coal and other freight on the Mississippi River.

**Pikeville, Ky.**—The Baltimore & Ohio R.R. has its engineers at work on the location of an extension from Kenova, W. Va., up the left bank of the Big Sandy River to the mouth of Shelby Creek in Pike County, where it will connect with its line 30 mi. up the creek to Jenkins, the seat of the Consolidation operations. The B. & O. has been delivering to the Chesapeake & Ohio at Shelby Creek. The Virginian Railroad is said to be planning an extension from Bluefield, W. Va., into the Elkhorn field by means of a connection with the B. & O. at Shelby Creek.

**St. Louis, Mo.**—Regular barge-line service for the transportation of coal and other freight between St. Louis and New Orleans will be established this spring by the Inland Navigation Co., according to John H. Bernhard, president of the company, who says the initial sailing from St. Louis will be Apr. 15. The company's first barge will have a capacity of 1,600 tons and will be equipped with screw propellers. The company plans to have a fleet of 36 barges by the spring of 1918, varying in capacity from 1,600 to 5,000 tons. The running time to New Orleans is to be five days. The company expects to give service almost all the year round.

**St. Louis, Mo.**—Officials of railroads operating eastward from Chicago and St. Louis still find it difficult to handle the large volume of tonnage which is being offered with anything like usual dispatch. This vast tonnage is more largely diversified at the present time than for two or three years and indicates the amount of business which is flowing eastward from Western sources and foretells the steady increase in general business. The labor situation is expected to play an important part in connection with railroad revenues in the not far distant future. Little change has been experienced in the west-bound movement, the volume being about equal to that of former normal years.

## Market Department

### General Review

**Anthracite softer in spite of low temperatures.** Plentiful supplies of bituminous, but sellers still confident. Interior market less satisfactory. Middle Western situation continues strong as result of floods and severe weather.

**Anthracite**—The warm weather of last week caused a decided reaction in the hard coal trade, which even the lowest temperature of the season, the early part of this week, failed to rectify entirely. Dealers still buy so long as they have storage room available, but consumers are showing little interest in the situation, in spite of the impending labor conferences and other factors of a constructive nature. Premium coal has practically disappeared, while a number of buyers have even been hard pressed to find a prompt disposal for some heavy orders placed during the recent stringency. The position of the sellers is notably less confident than it has been for some time past. There is a heavy movement to the interior points from the upper Lake docks, which will be practically cleaned up when the Lake season opens.

**Bituminous**—Supplies are more than adequate for all requirements, and prices have fluctuated erratically, but shippers are holding off and not attempting to force the market. In spite of the cumulative effects of the coldest temperatures of the winter, with the accompanying interruptions to transportation, the market is decidedly uncertain, and consignment coal is frequently difficult to move, even at substantial concessions on the recent high prices. Selling interests refuse to concede any definite weakness; they are confident that the low prices cannot continue for long, and are not committing themselves far into the future. However, there is considerable coal at distributing centers, while most consumers have fair stocks and there is little anxiety over the outlook. Tentative negotiations on April contracts are being followed with much interest, but no significant developments have yet appeared.

**Exports**—Further advances in ocean freights seem to have placed a restraining influence on the offshore business again, the movement over the Hampton Roads piers for last week having shown a sharp decline. The prohibitive levels at which freights are now ruling have resulted in a large accumulation of export orders, and it is to be hoped that the rumors to the effect that the British Government proposes taking stringent measures to rectify this situation will be soon realized. Supplies at the loading points, however, still continue only about normal, some shippers occasionally running short and others having free coal to offer at intervals.

**Ohio Valley**—The colder weather has stimulated the demand and interrupted the movement, with a result that the market is temporarily stiffer, but the tendency over the past several weeks has been disappointing. Most of the heavy buyers have apparently dropped out of the market, and it is slowly becoming evident that a return of the urgent demand of a month or so ago is very doubtful before Apr. 1 at least. However, orders for steam coal continue fairly persistent, and while there are occasional sales of tonnage on demurrage at something less than the full mine quotation, these are not of sufficient volume to disturb the equilibrium of the market.

**Middle West**—The severe weather conditions and inadequate car supply have created a strong demand for all grades, particularly screenings, though prices are not unduly inflated. The heavy stocks accumulated in anticipation of a suspension of mining operations is carrying most consumers through in a satisfactory manner, but it is doubtful if they will be able to replenish these again, as there is a large accumulation of unfilled orders now on hand. There are occasional urgent orders on which the matter of prices is a minor consideration, and the situation in the Northwest is particularly acute. On contracts for the new year, Middle Western agencies are very conservative about committing themselves over any appreciable period, while most of the small steam consumers are not evincing much interest in the matter.

**A Year Ago**—Anthracite production still heavily curtailed, and storage facilities of the companies choked full of coal. Bituminous buyers in control of the market are showing no anxiety regarding supplies. Preliminary forecasts on the Lake trade discouraging. No indications of any improvement in the Middle West.

### Business Opinions

**Iron Age**—With further price advances, and the end not yet in sight, withdrawals and postponement of new steel-taking projects occur, but they are as nothing in comparison with the avalanche of inquiries which are expected in early weeks from non-belligerent nations. The vague and general feelers from these sources are fast giving way to requests specific as to kind, amount and delivery. They come from quarters which have been waiting, for one reason and another, until the war should close, and their needs are urgent. The peace and war demands from the outside thus are calculated to keep the mills busy if domestic consumers are not willing to pay present high prices. There seem to be little indication of softer prices.

**Boston News Bureau**—The general situation, while exceedingly favorable in the main, has its uncertain side and this is dominant in conserving public sentiment. Apparently the large volume of trade and the ever-increasing profits lose their normal effect because of the fear of international controversies and domestic labor troubles. There is a general tendency among investors and the largest professional traders to await events bearing on the foreign situation as well as upon our own political position. But all this does not create any real feeling of pessimism. It only checks the courage to expand that would be the case under normal conditions.

**Dun**—Less dependence is placed upon foreign business as internal demands show further expansion. War contracts still bulk large, but strictly domestic requirements are an increasingly potent factor and provide a more substantial basis for permanent progress. Permits taken out for new construction in January in 81 leading cities in the United States call for an expenditure of \$46,378,478, an increase of 36.4% as compared with the \$34,013,692 reported by these centers for the same month in 1915. Commercial failures this week are 408, against 469 last week, 442 the preceding week and 455 the corresponding week last year.

**Brndstreet**—Industry is sold up for months to come, scarcity of materials is patent, demand is apparently insatiable, regardless of prices, and the country is confronted by an extraordinary situation. Buyers' excursions to the larger metropolitan cities have brought in an army of visiting merchants, the result being an active demand on jobbers for textiles, with interior merchants buying freely because of concern over probable lack of desirable supplies later on, and in numerous instances this feeling is manifested in requests for prompt shipments of goods required for use this spring, which fact also evidences the existence of light stocks in the hands of final purveyors.

**Dry Goods Economist**—In the New York market the week has been more active than any week within a long period. Buyers in practically all lines are in the market in large numbers, so much so, indeed, that in some houses difficulty is experienced in giving all of them attention. From all over the country the demand for merchandise continues to increase, and, in many cases, sellers are refusing to accept orders as large as the buyers would like to place. It is evident that merchants, merchandise men and department heads generally recognize not only that there is prospect of scarcity, but that today merchandise of practically every kind is good property.

**Marshall Field & Co.**—Current wholesale distribution of dry goods is well ahead of that of the corresponding period of a year ago. Road sales for immediate and spring delivery are running well ahead and are continuing to show great gains for fall delivery. There have been more customers in the market during the week than a year ago, and buying in the house has been excellent in all lines. Prices on staple cotton goods and other lines are firm.

**American Wool and Cotton Reporter**—Twenty-five per cent. more wool is being daily consumed than ever before in the history of the country. Stocks of wool in the hands of Boston dealers are rapidly being exhausted, but foreign wools are arriving in considerable quantities. The woolen goods market continues to show much activity, but the interest is not as great as it has been in recent weeks.

## ATLANTIC SEABOARD

## BOSTON

**Hampton Roads prices stationary. More even movement of coal coastwise, and New England prices relatively easy. Georges Creek in better supply. Pennsylvania grades unchanged. Water freights slightly firmer and anthracite in better supply.**

**Bituminous**—Indications now are that the winter will pass without any material advance in the market price of Pocahontas and New River at Hampton Roads. This is remarkable for a season that has been characterized by all kinds of congestion on the railroads; \$2.85 continues the ruling figure and loading dispatch with most of the agencies is still excellent. Marine transportation is moving better and there is much more regularity to the coastwise trade than was the case a month ago. The situation is not normal, however; there is still a dearth of f.o.b. inquiry and only a spasmodic demand for coal at New England distributing points.

Prices have not receded the past week as they did the week previous. A cold spell and nearly three days of snow-storm somewhat stimulated the market and by interrupting the movement of vessels caused a better request momentarily. At the same time coal "on the market" is hard to sell and alongside prices are easy at around \$5.25 for best grades, in medium-sized cargoes. Larger cargoes would be still more difficult to dispose of.

The situation on Georges Creek is much improved. Barges are now loading more regularly at the Baltimore terminals and there is a sufficient supply at Philadelphia and at New York to care for current contract requirements. No announcement has yet been made with regard to new season contracts, but there is likely to be some canvassing before February is over.

There is little change in the Pennsylvania grades. Movement all-rail has improved somewhat but there are still embargoes against some of the connecting lines at this end, in addition to a general shortage of locomotives. Prices are on about the same basis, f.o.b. mines, as a week ago, with sales not very plentiful. Operators who found it difficult to make deliveries on contracts are now sending small lots forward and there is much less anxiety on the part of consumers. Neither is there much interest in prices after Apr. 1.

The fear of a prolonged tie-up in bituminous is not so much in evidence as early in the winter. The uncertainty is not good for the trade and it will be interesting to see if any pronounced advance on Pennsylvania grades can be maintained.

**Anthracite**—Shipments have come forward in better volume since the mild weather in January. Stove is a little easier to get and sizes altogether are better assorted. The least spurt from the big cities, however, would quickly change this. Steam sizes are none too plentiful, and somewhat higher prices are ruling. Marine freights are so high that practically nothing has been heard from the independent shippers in this territory, except occasionally in sections where deliveries are all-rail.

Bituminous prices, f.o.b. loading ports at points designated, are about as follows, per gross ton:

	Philadelphia	New York	Baltimore	F.o.b. Mine
Clearfields	\$2.95@3.60	\$3.25@3.85		\$1.70@2.35
Cambrian and Somersets	3.10@3.85	3.40@4.10		1.90@2.60
Georges Creek*	2.92@3.02	3.22@3.32	\$2.85@3.00	

\*Contract.

Pocahontas and New River are quoted \$2.85 f.o.b. Norfolk and Newport News, Va. On cars at Boston and Providence, Pocahontas and New River are quoted at \$5@5.25.

## NEW YORK

**Demand for anthracite quiet and no premium coal at Tidewater. Egg the shortest and steam sizes plentiful. Bituminous prices easy and demand slack. Embargoes re-established. Shippers not pushing sales.**

**Anthracite**—Although the week opened with the lowest temperatures of the winter the anthracite market remained quiet and inactive. Demand during the week previous had been limited and the market only about resumed a normal activity. Premium coal has almost entirely disappeared except in sections of New England still under embargo where supply continues short. Dealers do not appear anxious to stock up and appear confident of being able to secure all they require. The heavier arrivals have filled the docks and it has been necessary for some railroads to renew the embargoes.

Demand for all prepared coals at Tidewater is easy, but along the line it is more active. At Tidewater egg coal is the shortest but shippers find no difficulty in taking care of all orders. Steam grades are plentiful with a surplus in most

sizes. Pea coal quotations vary according to necessity. Demand for buckwheat No. 1 is the strongest with prices ranging from \$2.85 to \$3.

Current quotations, gross tons, f.o.b. Tidewater, follow:

	Lower Ports			Upper Ports
	Circular	Individual	Circular	Individual
Broken	\$5.05		\$5.10	
Egg	5.30	\$5.30@5.30	5.35	\$5.35@5.35
Stove	5.30	5.30@5.30	5.35	5.35@5.35
Chestnut	5.55	5.55@5.55	5.60	5.60@5.60
Pea	3.50	3.75@4.00	3.55	3.80@4.05
Buckwheat	2.75	2.85@3.25	2.80	2.90@3.30
Rice	2.25	2.00@2.25	2.30	2.05@2.30
Barley	1.75	1.50@1.75	1.80	1.55@1.80

**Bituminous**—Supply is more than sufficient to meet immediate demands and the early part of the week embargoes were in force at most of the docks and on most of the railroads inland. Quotations as low as \$2.85 are heard at Tidewater but the average low figure is nearer \$3.25. Mine prices range from \$1.45 to \$1 more, according to the road over which shipments were to be made. Prices have fluctuated considerably during the week, but shippers have not been urging buyers. Much is heard about Pittsburgh coals being brought to, or on their way to, this market, but shippers of other grades do not appear to worry much. Some attention is now being devoted to contracts for the new year and there is talk of a substantial advance over last year's prices with the outcome hinging largely on the results of the conferences between the operators and mine-workers. No large contracts are reported closed as yet. Car supply and labor shortage continue important factors in the general situation, but with the market in its present condition there are no serious results as yet.

Current quotations, gross tons, f.o.b. Tidewater, follow:

	South		Port	Mine
	Amboy	Reading	St. George	Price
Georges Creek Big Vein	\$4.25@4.50	\$4.25@4.50	\$4.25@4.50	\$2.75@3.00
Georges Creek Tyson	3.50@3.75	3.50@3.75	3.50@3.75	1.95@2.20
Clearfield:				
Medium	3.25@3.50	3.25@3.50		1.70@1.95
Ordinary	3.25@3.50	3.25@3.50		1.70@1.95
Broad Top Mountain				1.70@1.95
Cambria County:				
South Forks	3.50@3.75			1.95@2.20
Nanty Glo	3.35@3.60			1.80@2.05
Barnesboro	3.25@3.50			1.70@1.95
Somerset County:				
Quemahoning	3.25@3.50	3.25@3.50	3.25@3.50	1.80@2.05
Medium	3.25@3.50	3.25@3.50	3.25@3.50	1.70@1.95
Latrobe	3.00@3.25			1.45@1.70
Greensburg	3.25@3.40			1.70@1.85
Westmoreland	3.80@4.00			2.25@2.45
West Virginia Fairmont	3.25@3.40	3.25@3.40	3.25@3.40	1.45@1.60
Fairmont mine-run	3.25@3.40	3.25@3.40	3.25@3.40	1.45@1.60
Steam	3.00@3.25	3.00@3.25	3.00@3.25	1.45@1.70
Western Maryland	3.00@3.25	3.00@3.25	3.00@3.25	1.45@1.70

## PHILADELPHIA

**Stove active, chestnut slow and egg heavy. Smaller demand for buckwheat and rice, but prices firm on all sizes. Dealers anxious for tax refund. Bituminous prices lower, with embargoes on and cars short.**

**Anthracite**—With the return of mild weather conditions some of the dealers are paying the penalty of ordering coal so recklessly during the short period of severe weather when shipments were slow. The business has fallen off considerably and whole trainloads of coal have been consigned to a single dealer. Demurrage and transfer charges have piled up until quite a few dealers are facing a heavy expense. The dealers seem to be particularly critical as to the preparation of the coal now that the business has slackened; they are now either asking allowances or want to be relieved of consignments.

While business on the whole remains good, there is no particular rush. The dealers show no hesitancy in buying when they have room, but the domestic consumers show no interest in spite of all strike talk. Without severe weather it is not expected there will be any big demand until March, when a more active market will develop. Some of the large shippers who have enormous stocks of chestnut and other sizes in storage are becoming anxious and are not at all sure of moving the coal before the anticipated suspension in the spring. Most of the complaints of slow business are coming from the individuals, who are having some trouble in selling their production and at times have coal standing awaiting orders. They are not charging premiums on pea coal, but have reduced the price to the circular rate of \$2.55 with the idea of using it to help move the slower prepared sizes.

Pea coal will be the last size to be affected by any slump that might come. Shipments continue heavy and orders for it are out of all proportion as compared with egg, stove and chestnut. All dealers seem determined to have a stock on hand in the event of the mining interests discontinuing making this size, as is now freely predicted. Buckwheat and rice experienced some falling off in orders. Nevertheless the prices of all steam grades continue well above the circular.

The retail dealers are getting more anxious as to the refund of the Pennsylvania State tax since the last word on the subject has been said by the state officials. Many of the dealers are getting insistent that the return be made at once and threaten to claim interest.

Prices per gross ton at mines for line shipment and f.o.b. Port Richmond are as follows:

	Line	Tide		Line	Tide
Broken.....	\$3.60	\$4.85	Pea.....	\$2.55	\$3.30
Egg.....	3.85	5.10	Buckwheat.....	1.55	2.30
Stove.....	4.10	5.10	Rice.....	.90	1.80
Chestnut.....	4.25	5.35	Barley.....	.55	1.30

**Bituminous**—All grades have declined from 10c. to 25c. a ton, despite the fact that railroad embargoes are more stringent than ever and the car supply is poor, some mines being closed down from this cause. The mining interests are confident that the low prices cannot stand for very long and they are not committing themselves more than a day ahead at a time. The consumer, with a fair stock in storage, and with the first of April somewhat less of the bugaboo than it was ten days ago, is loath to buy. There is a feeling that the various embargoes placed on shipments out of this territory will cause fuel to accumulate here with a consequent lowering of price. There is no considerable quantity of free coal in the market, except at the piers where there is a slight accumulation on account of a week-long fog retarding vessel movement down the bay.

Present offerings per gross ton at mines are about as follows:

Georges Creek Big Vein..	\$2.90@3.00	Fairmont gas, $\frac{1}{4}$ .....	\$1.90@2.00
South Fork Miller Vein..	2.40@2.50	Fairmont gas, mine-run.....	1.70@1.80
Clearfield (ordinary)....	1.85@2.00	Fairmont gas, slack.....	1.50@1.60
Somerset (ordinary)....	1.70@1.80	Fairmont lump, ordinary.....	1.70@1.80
West Va. Freeport.....	1.65@1.75	Fairmont mine-run.....	1.50@1.60
		Fairmont slack.....	1.50@1.60

#### BALTIMORE

**Embargoes cause a slump in prices. Exports continue light. Severe weather helps anthracite sales.**

With only Port Richmond and Curtis Bay open to shipment for the most of last week, the bituminous market has slumped further. Prices vary widely on individual quotations and sales, but in many cases were nearly a dollar off high level of the recent boom. Export movement continues light. Last week the total foreign loading was 14,857 tons of bituminous and 923 tons of anthracite. The official figures for January show a total export for that month of 42,302 tons.

A cold wave has caused activity in anthracite sales and smaller sizes are scarce in some yards.

Bituminous prices at the outset of the present week were about as follows:

Mines	Balt.*	Fairmont	Mines	Balt.*
Geo. Crk. Big Vein	\$2.25	\$3.43	Ordinary mine run	\$1.20
Geo. Crk. Tyson...	2.00	3.18	Ordinary $\frac{1}{4}$ .....	1.20
Clearfield.....	1.50	2.68	Ordinary slack.....	1.40
South Fork.....	1.75	2.93	Low sulphur mine- run.....	Out of market
Latrobe.....	1.30	2.48	Low sulphur $\frac{1}{4}$ ....	Out of market
Somerset (best)...	1.60	2.78	Low sulphur.....	Out of market
Somerset (good)...	1.50	2.68	Low sulphur slack.....	Out of market
Quemahoning.....	1.75	2.93	* F. o. b., outside Capes.	
Freeport.....	1.25	2.43		
Miller Vein.....	1.70	2.88		

#### HAMPTON ROADS

**Dumpings for all ports showing up well. Government takes fair quantity. Demand continues good.**

The dumpings at tidewater continue heavy. Foreign cargoes for the week have increased in both number and tonnage over the previous week, while the coastwise movement has also been large and the government has taken some coal by colliers. Coal for Bermuda has gone to both Hamilton and St. Georges and has been somewhat in excess of the usual movement in that direction. The coal has been taken care of largely by American tonnage, both steam and sail.

The demand continues good for both spot and contract coal with prices showing very little change. There is somewhat of a shortage on all grades and indications are that there will be some advance in both the standard run-of-mine and high volatile. The demand for this latter coal during the week has been considerably in excess of the supply there being practically none on hand that was not sold up.

The supply of both Pocahontas and New River is somewhat below normal and while some of the suppliers are short and having difficulty in getting coal forward there are others with some free spot coal but in no extra large quantity.

**Railroad Tonnages**—Dumpings over the local piers for the past five weeks compare as follows:

Railroad	Week Ending				
	Jan. 15	Jan. 22	Jan. 29	Feb. 5	Feb. 12
Norfolk & Western....	144,969	142,335	147,596	128,288	158,265
Chesapeake & Ohio....	105,053	98,388	117,715	106,543	106,525
Virginian.....	88,396	101,237	100,435	75,840	63,056
Totals.....	338,418	341,960	365,746	310,671	327,846

## Ocean Charters and Freights

### OCEAN FREIGHTS

Export coal orders are accumulating very rapidly, owing to the scarcity of boats, and notwithstanding the fact that shippers are offering advanced rates, they are having difficulty in securing tonnage; \$14.40 with 500 tons per day discharge is offered freely for any size steamers to lower Plate ports, but tonnage is not obtainable at this rate. Steamers have been closed at \$26.40 to ports on the West Coast of Italy, and additional tonnage can be secured at this figure; \$3.50 with 1,500 tons per day discharge is offered to Havana, parties intimating that they will pay \$3.75 to \$4. Windward Island rates are advancing to new high levels.

We would quote freight rates on coal by steamer as follows:

To	Rate	To	Rate
Havana.....	\$3.50@4.00	Bermuda.....	\$4.50@5.00
Cardenas or Sagua.....	4.75	Vera Cruz.....	6.50@7.00
Ciuefuegos.....	4.50@4.75	Tampico.....	6.50@7.00
Port au Spain, Trinidad	7.00@8.00	Rio.....	15.60@16.80 <sup>†</sup>
St. Lucia.....	7.00@8.00	Santos*.....	16.80 <sup>‡</sup>
St. Thomas.....	6.50@7.00	Montevideo.....	16.80 <sup>†</sup>
Barbados.....	7.00@8.00	Buenos Aires or La Plata <sup>†</sup>	16.80 <sup>†</sup>
Kingston.....	4.50@5.00	Rosario.....	18.00 <sup>‡</sup>
Curacao.....	6.50@7.00 <sup>c</sup>	West Coast of Italy.....	25.40
Santiago.....	4.50@5.50	Barcelona**.....	24.00
Quintana.....	4.50@5.50	Valparaiso or Callao.....	17.00
Demerara.....	7.00@8.00	Marseilles.....	25.20

\* Consignees paying dockage dues. \*\* Spanish dues for account. <sup>†</sup> Quotations on Plate coal by British steamers; neutral steamers are more difficult to obtain and the rates are always higher. <sup>‡</sup> For very quick discharge.

<sup>1</sup> 500 tons discharge @ 30c. <sup>2</sup> 500 discharge. <sup>3</sup> And p.c.

W. W. Battie & Co.'s Coal Trade Freight Report.

### COASTWISE FREIGHTS

There appears to be a light demand for small barges from Hampton Roads, 1,000 to 1,500 tons, but above that the orders are only scattering. There is some rechartering, but less than a week ago. Steamer owners find it extremely hard to charter along the coast at anything like the rates that obtain on small boats; 1,500-ton barges are quoted at \$2.25@2.50, Hampton Roads to Boston, but it is doubtful if a 5,000-ton boat could command a flat \$2. Marine freights from New York have softened, especially on Long Island Sound, about an even dollar being the highest charter recently. Meanwhile, rates on bituminous in anthracite-carrying barges from Philadelphia are \$1.25 to Boston.

### VESSEL CLEARANCES

The following steamers have cleared from various ports during the week ended Feb. 12:

NORFOLK			NEWPORT NEWS—Continued		
Vessel	Destination	Tons	Vessel	Destination	Tons
Joel Cook <sup>1</sup>	St. Georges	534	Hermod <sup>7</sup>	Barbadoes	4,462
Italia <sup>2</sup>	Genoa	3,194	Vitalia <sup>7</sup>	Santiago	1,500
Anna R. Heidritter <sup>1</sup>	St. Georges	1,066	S. S. Orion <sup>7</sup>	Curacao	2,300
Frances Hyde <sup>1</sup>	St. Georges	882	Clarissa		
Ellin <sup>3</sup>	Piraeus	5,296*	Radcliffe <sup>8</sup>	Genoa	9,300
Venator <sup>1</sup>	Manzanillo	1,500	Nolismont <sup>8</sup>		7,800
Cora A. <sup>4</sup>	St. Georges	614	Strathfillan <sup>8</sup>	Rio de Janeiro	5,500
Hugh de Payens <sup>5</sup>	Santo Domingo	560	Negus <sup>7</sup>	Barbadoes	4,100
Dorothy <sup>1</sup>	Hamilton	600	Uranus <sup>8</sup>		5,900
Ulysses <sup>6</sup>	Canal Zone	12,000	Heina	Havana	1,797

PHILADELPHIA		
Vessel	Destination	Tons
American Transport <sup>7</sup>	Havana	7,357
		* And 422 tons of coke.
Castner, Curran & Bullitt, Inc.		
Baker, Whitley.		
7 Berwind-White.		
C. H. Sprague.		
		<sup>2</sup> Pocahontas Fuel Co. <sup>3</sup> Smokeless Fuel Co. <sup>4</sup> C. G. Blake. <sup>5</sup> Crozer-Pocahontas.

## OHIO VALLEY

### PITTSBURGH

Prospects improved by cold snap, but prices unchanged. Continued moderate car shortages expected.

The market is stiffer this week by reason of the cold snap, the thermometer having approached the zero mark at the opening of the week; this reduced the supply of cars from the full supply that is normally expected for the first day or two of the week at least, and at the same time gave an impetus to the domestic trade. The general tendency of the coal market during the past few weeks, however, has been disappointing to operators. The heavy demand with high prices that characterized the market in December and the beginning of January was assumed to set the pace for the market to Apr. 1 and the reaction that occurred later was

regarded as only temporary; but now it seems rather that the extreme advance in the market was the abnormal thing, and that only a relatively strong market is to be expected until Apr. 1, after which the course of values will be determined by whether or not there is a general suspension of mining.

Apart from car shortages caused by exceptionally cold weather it seems likely that supplies will average between 60 and 75% of reported requirements for some time to come. While embargoes come off and go on again the railroads do not seem to be making any substantial progress toward clearing their lines. Prompt coal remains quotable as follows: Slack, \$1.30@1.40; mine-run, \$1.35@1.45;  $\frac{3}{4}$ -in., \$1.40@1.50;  $1\frac{1}{4}$ -in., \$1.55@1.65, per net ton at mine, Pittsburgh district.

#### BUFFALO

**Bituminous** inactive and may continue so for some time. Supplies eastward are heavy. Anthracite improving. Chestnut scarce, but stove plentiful.

**Bituminous**—The market is very flat. The raising of the embargoes eastward has filled New England with coal and taken most of the buyers out of the market; indications are that that territory may not return to active buying for some weeks. There seems to be no storage room for the coal coming in and stocking operations have about ceased. There is a partial offset by the great shortage of cars; none of the roads can furnish more than 50% of the demand and some are running much shorter. The roads are feeling the effect of the snow and are moving much slower than formerly. Prices have gone down sharply. Regular quotations are:

	Pittsburgh	Allegheny Valley	Penn Smokeless
Lump.....	\$3.00	\$2.80	\$3.25
Three-quarter.....	2.85	2.55	...
Mine run.....	2.30	2.20	3.00
Slack.....	2.20	2.10	3.00

Prices are per net ton, f.o.b. at destination, except that east of Rochester and Kingston, Ont., they are per gross ton.

**Anthracite**—Severe winter weather has firmed up prices and increased the demand, but it is late in the season and sales are not heavy. Most of the shippers report a scarcity of chestnut and a heavy supply of stove. Some consumers report using stove for chestnut. Reports from beyond Lake Michigan agree that the winter is heavy and the stocks of anthracite are going off fast. The prospect is of a much more general cleaning up of the docks there than for several winters. There is as yet little or no premium paid for independent anthracite here, which indicates that the regular supply is adequate. Loading into Lake steamers has been suspended indefinitely. Following are winter quotations of anthracite:

	Cars	Vessels	Wagons	Curb
Grate.....	\$5.60	\$5.85	\$5.40	\$6.65
Egg.....	5.85	6.10	5.65	6.90
Stove.....	5.85	6.10	5.65	6.90
Chestnut.....	6.10	6.35	5.90	7.15
Pea.....	4.30	4.55	4.10	5.35
Buckwheat.....	3.25	3.50	3.05	4.30

Deliveries are per gross ton on cars and vessels and per net ton on wagons and at curb. An additional charge of about 25c. is made where it cannot be spouted into bin.

#### COLUMBUS

**Some weakness in domestic circles but steam business continues fairly strong. The small sizes are also weaker.**

Retailers are buying only for the present and are loath to accumulate stocks. Rural dealers are complaining because of the bad roads which prohibits hauling to a large degree. There is a good demand for steam tonnage as manufacturing is still active not only in iron and steel lines but in many other directions. The stocking movement to accumulate a surplus against a suspension after Apr. 1 is now about over. Railroads have stocked about all of the coal they can take care of and are buying for current needs only.

The strength of the small sizes which has been one of the features of the market is not as marked as formerly. A larger production of domestic grades in some sections has made a better supply of nut, pea and slack and prices have declined about 10c. a ton.

The car shortage is still rather severe and as a result West Virginia mines are not as active as formerly. This naturally enlarges the market for Ohio-mined coals. Prospects for the future are good all along the line, if the weather is cold. Contracting for steam tonnage is not very active, as operators and shippers prefer to await the results of the wage conference at Mobile. Many Ohio operators believe that a suspension is inevitable and are preparing accordingly.

Pocahontas is not very strong in central Ohio territory and the same is true of White and Red Ash. Smokeless is showing more strength. Anthracite is moving fairly well and prices remain firm.

Prices in Ohio fields, f.o.b. mines, per short ton, are as follows:

	Hocking	Pomeroy	Eastern Ohio	Kanawha
Re-screened lump.....	\$1.60	\$1.70	...	...
Inch and a quarter.....	1.50	1.50	\$1.40	\$1.50
Three-quarter-inch.....	1.40	1.40	...	1.40
Nut.....	1.25	1.30	...	1.25
Mine-run.....	1.20	1.25	1.05	1.20
Nut, pea and slack.....	1.00	1.00	1.00	1.00
Coarse slack.....	.90	.90	.90	.90

#### DETROIT

**Sales of steam coal are more regular and in larger volume. Domestic trade is moderately active. Lake shippers offer contracts.**

**Bituminous**—With low temperature, snowfall and sharp winds, alternating and combining, retail coal dealers have found demand for domestic stock quite steady. They have been obliged in some instances to place orders for an additional supply. Improvement in buying and greater regularity of orders gave a more satisfactory aspect to the steam-coal trade during the week, and prices are holding rather steady around schedule. Sales of consignment coal at prices below mine quotations still occur but are not frequent enough to disturb the equilibrium of the market. Shipments are somewhat larger.

**Anthracite**—Despite wintry weather, there was only light buying of anthracite. The movement is delayed because of freight congestion and lack of cars in the East.

#### TOLEDO

**Big lake movement expected. Demand from the East lighter causing an easing up in the local market.**

The market here is spotty. The demand from the East has decreased and mine-run and three-quarter are both easier. Slack is still very firm. Prices on West Virginia and Ohio are unchanged and Pocahontas is practically off the market, being largely used in coke ovens. Hocking slack is easier than it was. Domestic coal is rather quiet with not much movement. West Virginia and Kentucky lump is a trifle weaker. Pocahontas egg is strong at \$2. Coal is moving out well at the upper docks and the spring will find them well cleared up. A heavy Lake movement is anticipated for next season.

#### CINCINNATI

**Increasing demand for steam grades but domestic grades easier. Short car supply is hampering the movement.**

Several flurries of cold weather have helped the trade to a limited extent, particularly the retailers and the demand for steam purposes has increased steadily. The low production of prepared grades has undoubtedly improved the market for steam coals and the call also extends to mine-run. The car situation is again acute and has prevented operators from taking advantage of the demand; the entire West Virginia field is averaging hardly 50% of its requirements. In view of the congestion existing at all the terminals prospects of relief are far from bright. Prices should advance materially.

## COKE

#### CONNELLSVILLE

**Moderate car shortages continue. Demand for prompt coke very light. Production and shipments slightly decreased.**

The coke trade continues to suffer almost continuously from car shortages, but production is not materially affected, the operators doing quite well in the circumstances. Whether or not there are important shortages of coke at the blast furnaces is a question. Shipments have been irregular enough to produce shortages at many points, but the signs of important shortages, by furnaces coming into the market for spot coke, are generally lacking. There is scarcely any inquiry for prompt coke. In some quarters it is thought that such furnaces as are short of coke have definitely adopted a policy of taking what they get, fearing that to enter the spot market would bring out some supplies at the expense of contract deliveries. There is a moderate demand for prompt foundry coke, buyers taking what they can get at moderate prices and being quite averse to paying anything fancy. We quote: Prompt furnace, \$3.25@3.75; contract, first half, \$2.35@2.50; year, \$2.25@2.35; prompt foundry, \$3.75@4.25; contract foundry, \$3.25@3.75, per net ton at ovens.

The "Courier" reports production in the Connellsville and lower Connellsville region in the week ended Feb. 5 at 433,182 tons, a decrease of 9,434 tons, and shipments at 420,686 tons, a decrease of 21,912 tons.

**Buffalo**—The demand is increasing and the severe car shortage has reduced the output materially. Shippers quote best 72-hr. Connellsville foundry at \$6.50 and 48-hr. furnace at \$5.30, furnace not being as strong as foundry. There is no

real stock coke on the market, nothing of lower grade than furnace offering. There is not likely to be any lower prices so long as cars remain scarce.

**Chicago**—Activity in domestic byproduct sizes is still extraordinarily strong, and ovens pushed to capacity. Connellsburg prices show an inclination to become higher and gas house is stronger than ever. Announcement has been made that some of the leading coke interests will increase productive capacity of ovens. Prices per net ton f.o.b. cars Chicago are as follows: Connellsburg, \$6.50@6.75; Wise County, \$6.50@6.75; byproduct foundry, \$6.25; byproduct domestic, \$5@5.25; gas house, \$4.75.

**St. Louis**—Domestic coke continues in good demand with prices firm. Industrial consumption remains steady with an indication of further early improvement. The following prices, per net ton, are quoted f.o.b. cars St. Louis: Byproduct (all sizes), \$5.25; gashouse (lump and egg), \$4.50; petroleum (lump), \$6.75.

## MIDDLE WESTERN

### GENERAL REVIEW

**Heavy buying with spot orders plentiful. Prices of all grades satisfactory. Retailers' supplies very low.**

The market continues strong for all grades and sizes; a brisk demand exists everywhere, but with prices not abnormally high. The weather has been seasonably cold, and most of the Illinois and Indiana mines have been worked full time at maximum output. Car supply has been scant, the movement slow, and there has been an accumulation of unfilled orders at the mines. There has been a heavy demand for domestic coals with full circular prices being obtained from country points. Eastern varieties have shown improvement as compared with last week.

Screenings continue at a high level even in the face of an increased production of coarse coals. A goodly volume of spot business in fine coals is in evidence on which the question of price is secondary. Contract steam business has shown a spurt, some of the trade covering their requirement at higher prices than last year and not all of them being able to get under cover because of the unwillingness of some shippers to obligate themselves far into the future, particularly on fine coals. Salesmen on the road are unanimous in reporting unusually small stocks at country yards. The situation at Northwestern points is very acute and with the movement slow from Illinois mines due to inadequate transportation facilities, there is a possibility of considerable suffering on the part of the householders.

Many small steam consumers are without storage stocks, and are evidently proceeding on the theory that no suspension of mining will occur at the end of March. The news from the Mobile conference is of a mixed character.

### CHICAGO

**Weather continues cold. Demand for lump coal quickened. Steam sizes still strong.**

The Franklin County shippers have a large volume of unfilled orders on hand for every size. The demand for lump and egg has been particularly strong, and No. 1 nut demand is brisk; on steam sizes some of the operators are sold a month ahead. Shutdowns due to flood conditions is about overcome. Prices are strong at circular on all grades, screenings averaging \$1. Williamson and Saline County operators have more orders than they can fill.

Screenings from the Springfield district are somewhat easier. Heavy shipments of storage coal have been made from Central Illinois mines this week. Domestic grades have been commanding full circular prices.

Indiana mines report very satisfactory business. Knox County operators are again able to move coal to this market after the recent interruption due to high water, and the Clinton field is making strong efforts to catch up on accumulated orders due to the same cause. Industrial consumers are taking increased quantities of steam coals for storage.

The local smokeless market is strong on account of scarcity of spot shipments. It is said that the leading smokeless operators will issue a new circular shortly, the main point of which will be a discontinuance of the \$2.25 schedule which has been difficult of maintenance this season. It is reported that railroads are only furnishing a 40% car supply, which accounts for smokeless mine-run shipments only being sufficient to take care of contract requirements in this territory.

Hocking prices have been held at circular, with little coal offered.

The market for Kentucky grades is improved, due to colder weather. A wide range of quotations still exists, however, and Millers Creek as usual commands fancy prices.

There is a sharp demand for anthracite from all directions. Supplies in transit are scant, and some of the dealers are not well stocked. It is possible that the published statement of the anthracite operators has had some effect in inducing additional purchases.

Quotations in the Chicago market are as follows, per net ton, f.o.b. cars at mines:

	Williamson and Franklin Co.	Springfield	Sullivan	Clinton	Knox and Greene Cos.
Lump....	\$1.75	\$1.60@1.75	\$1.60@1.75	\$1.65@1.75	\$1.50@1.60
Steam lump	....	1.35	1.30@1.35	1.25@1.35	....
2 $\frac{1}{2}$ and 3-in.	....	....	....	....	....
lump....	....	....	1.45@1.60	1.25@1.35	1.35@1.40
1 $\frac{1}{2}$ -in. lump.	....	....	1.35	1.25@1.35	1.35@1.40
Egg.....	1.75	1.65	1.25@1.30	1.50	1.50
Nut.....	1.65	1.20@1.25	1.30@1.35	1.20@1.25	1.20@1.25
No. 1 washed	1.75	....	1.50	....	....
No. 2 washed	1.50@1.60	....	1.40	....	....
No. 1 nut	1.75	....	....	....	....
No. 2 nut	1.60	....	....	....	....
Mine-run...	1.10@1.15	1.05@1.10	1.05@1.10	1.10	1.05@1.10
Screenings...	1.00@1.05	.90@.95	.85@.95	.95@1.00	.95@1.05
Harrisburg & Saline Co.					
E. Kentucky	....	....	Pocah. & Penna.	....	Hocking
Lump....	\$1.60@1.75	\$1.80@2.30	\$1.85@2.00	\$2.00@2.10	\$1.85@1.95
1 $\frac{1}{2}$ -in. lump.	1.30@1.35	....	....	....	1.60@1.75
Egg.....	1.60@1.75	1.50@1.90	1.85@2.10	2.00@2.10	1.10@1.15
Nut.....	1.40@1.70	....	....	....	....
No. 1 nut	1.60@1.75	....	....	....	....
No. 2 nut	1.60	....	....	....	....
Mine-run...	1.15	1.15@1.25	1.40	1.40	1.15@1.25
Screenings...	1.00@1.10	.90@.95	....	....	.90@1.15

### INDIANAPOLIS

**Car shortage still interfering with operations. Doubtful if mines can catch up with orders by Apr. 1. Prices unchanged but firm.**

The car shortage remains a large factor in the Indiana coal situation. The floods have subsided and damages by washouts have been repaired so that railroad transportation may proceed in a normal way, but there are so many loads in transit that the mines are still short of cars and unable to resume full operation. This handicap is responsible for a reduction of about 25% in mine operation, but it is believed that another week will see the end of this condition.

Consumers as a rule have not been handicapped as they had been stocking up in anticipation of a suspension of mining operations Apr. 1. These piles were drawn on when no new shipments were received and consumers hope to replenish these stocks but the time is getting short and it is doubtful whether the mines will be able to make up the shortage. Prices are unchanged, with screenings selling on a range of 90 to 95c. a ton f.o.b. mines.

### ST. LOUIS

**Drop in temperature stimulates domestic demand and influences steam consumption. Screenings easier. Return of storage inquiries.**

All sizes are in healthy demand excepting screenings from the Standard field. Orders are plentiful for Williamson and Franklin County domestic sizes with prices continuing at the top points. Good demand exists for current steam consumption, and storage movement together with added inquiries, is exerting considerable pressure, especially on screenings which are scarcely obtainable.

Mt. Olive and Staunton with various markets at their disposal are enjoying a free movement, the best for several years with fairly good prices. Screenings from that field are in good demand, ranging around the dollar mark. Montgomery County appears to be well sold ahead at firm prices with no screenings to offer in the market. Intermediate is securing a full share of the going business at prices that are satisfactory.

After a short rest period, storage inquiries for lump are again in evidence. Car supply is good in some quarters and unusually short in others.

Quotations are as follows, per net ton, f.o.b. cars at mines.

	Williamson and Franklin	Staunton and Mt. Olive	Montgomery Co.	Intermediate	Standard
8-in. lump...	....	....	....	....	\$1.35@1.50 \$1.15@1.25
6-in. lump...	\$1.60@1.75	\$1.35@1.50	\$1.35@1.50	1.35@1.50	1.15@1.25
3-in. lump...	1.50@1.65	1.25@1.35	....	1.35@1.50	....
2-in. lump...	1.40@1.50	1.25@1.35	....	1.25@1.30	1.00@1.15
1 $\frac{1}{2}$ -in. lump...	1.40@1.50	....	1.20@1.35	1.20@1.30	.95@1.15
6x3-in. egg...	1.60@1.65	....	1.35@1.50	1.35@1.50	1.15@1.25
6x2-in. egg...	1.20@1.35	....	1.20@1.35	1.25@1.30	1.15@1.25
6x1 $\frac{1}{2}$ -in. egg...	1.40@1.50	....	1.20@1.35	1.25@1.30	1.00@1.15
No. 1 nut...	1.35@1.50	....	1.25@1.40	1.25@1.30	1.00@1.15
No. 2 nut...	1.25@1.40	1.00@1.15	....	1.00@1.15	1.00@1.15
Mine run...	1.10@1.20	1.10@1.15	1.10@1.15	1.10@1.15	.90@1.10
Screenings...	.90@1.00	.75@.85	.75@.85	.75@.85	.75@.85
Washed					
No. 1 nut...	1.60@1.75	1.50@1.60	....	1.50@1.60	1.50@1.60
No. 2 nut...	1.50@1.60	1.40@1.50	....	1.40@1.50	1.40@1.50
No. 3 nut...	1.50@1.60	1.40@1.50	....	1.40@1.50	1.40@1.50
No. 4 pea...	1.50@1.60	1.40@1.50	....	1.40@1.50	1.40@1.50
No. 5 slack...	.90@1.00	.75@.85	....	.75@.85	.75@.85

## DULUTH

Movement heavy and prices advance. Car service inadequate.

Continued cold weather for the past week has kept the dock companies working at high speed to meet the tremendous demand for fuel throughout the entire Northwest. Complaints of delays, due to lack of cars, are frequently heard and, coupled with the severe snowstorms that have prevailed throughout this section of the country, the railroads are laboring under a heavy handicap. Smokeless grades and screenings are apparently short and available stocks are being rapidly depleted. Dock companies generally are out with a new circular announcing an advance in the price of the prepared sizes of smokeless coals.

Quotations per short ton, f.o.b. cars Duluth docks, are as follows:

	Yough	Splint	Hock	Smokeless	Elkhorn
Lump.....	\$3.40	\$3.40	\$3.40	\$5.00	\$3.75
Dock run.....	3.10	3.10	3.05	3.25	3.25
Egg, stove and nut	3.40	3.40	3.40	5.00	3.65
Screenings.....	2.40	2.40	2.25	2.75	2.55

Anthracite has fared as well as bituminous, the demand at interior points being well maintained. Stocks are apparently ample, no complaint as to shortages in any of the grades having been noted. We quote f.o.b. cars per short ton at Duluth docks as follows: Nut, \$7.10; egg, \$6.85; stove, \$6.85; pea, \$5.55 and buck, \$4.

## PRODUCTION AND TRANSPORTATION STATISTICS

## COAL MOVEMENT

Fuel shipments over 13 of the leading Eastern carriers for July, August and October of 1914 and 1915, were as follows, in short tons:

	July		August		October	
	1914	1915	1914	1915	1914	1915
<b>Anthracite:</b>						
B. & O. ....	72,223	70,248	84,737	81,436	127,394	173,613
B. R. & P. ....	5,080	8,970	7,362	5,635	12,324	14,281
B. & Susq. ....	200	207	673	379	939	1,175
C. & O. ....	878	1,319	1,866	1,807	1,289	1,734
Erie. ....	851,555	783,726	872,357	802,059	953,416	914,736
H. & B. ....						
T. M. ....		73				111
Penn. ....	680,491	653,020	795,492	743,257	1,047,340	1,084,739
P. & L. E. ....		46		41	94	152
P. S. & N. ....	524	278	567	221	771	971
Virginian. ....	498	175	331	84	61	163
W. Md. ....	21,139	22,933	24,647	26,471	25,008	40,217
Total....	1,632,588	1,540,995	1,788,032	1,661,390	2,168,636	2,231,892
<b>Bituminous:</b>						
B. & O. ....	2,738,845	3,042,427	2,922,802	3,181,407	2,802,702	3,312,195
B. R. & P. ....	600,777	652,776	798,967	648,087	648,915	803,521
B. & Susq. ....	81,290	77,734	119,612	93,813	94,871	115,030
C. & O. ....	1,800,351	2,054,656	2,104,217	2,236,625	2,026,589	2,175,256
Erie. ....	479,464	560,393	635,310	545,868	494,830	818,701
H. & B. ....						
T. M. ....	67,651	81,143	80,215	82,353	84,785	120,951
N. Y. C. & H. R. ....						
Buffalo (and East) ....	420,656	504,002	441,633	529,251	534,708	656,023
N. & W. ....	2,241,424	2,632,978	2,218,544	2,762,018	1,757,198	2,753,601
Penn. ....	3,766,158	3,668,146	4,074,810	3,847,575	3,976,192	4,304,466
P. & L. E. ....	1,069,440	949,787	1,063,989	975,727	834,940	1,207,533
P. S. & N. ....	138,754	232,836	164,412	183,428	192,449	300,501
Virginian. ....	266,439	360,537	346,266	302,694	322,810	339,820
W. Md. ....	599,958	742,216	599,594	820,115	563,617	847,598
Total....	14,271,207	15,559,631	15,560,371	16,298,961	14,334,606	17,755,196

## MIDDLE WESTERN ROADS

The following is a comparative statement of coal handled over the 17 principal Middle Western carriers for November, and the first eleven months of 1915, compared with the same periods last year:

	November		11 Months	
	1914	1915	1914	1915
<b>Illinois Central. ....</b>				
	665,850	862,816	6,992,790	7,164,502
C. & E. I. R.R. ....	597,736	741,199	6,176,973	5,910,358
C. B. & Q. R.R. ....	568,789	626,492	5,257,687	5,294,573
C. C. C. & St. L. R.R. ....	468,429	553,949	4,466,493	4,742,833
Vandalia R.R. ....	405,829	487,227	4,051,084	4,450,988
C. T. H. & S. E. Ry. ....	248,849	320,004	2,745,544	2,840,586
C. & A. Ry. ....	151,316	210,804	1,583,633	1,858,587
Wabash R.R. ....	153,285	145,109	1,438,216	1,438,600
St. L. I. M. & S. Ry. ....	118,433	141,225	1,409,854	1,450,989
Southern Ry. ....	101,035	136,017	1,320,837	1,139,265
B. & O. S. W. R.R. ....	102,677	80,294	788,118	900,961
St. L. T. & E. R.R. ....	61,408	65,161	629,549	562,931
St. L. & O. F. Ry. ....	50,309	71,897	489,731	602,762
L. & M. Ry. ....	59,490	46,374	483,367	446,999
C. I. & L. Ry. ....	39,413	75,867	510,740	627,969
C. P. & St. L. Ry. ....	36,977	53,255	340,135	418,707
C. & N. W. Ry. ....	44,398	44,249	313,135	378,912
Totals.....	3,874,223	4,664,939	38,997,886	40,230,522

## COAL AGE

## Vol. 9, No. 8

## DULUTH

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Screenings.....	2.40	2.40	2.25	2.75	2.55

Anthracite has fared as well as bituminous, the demand at interior points being well maintained. Stocks are apparently ample, no complaint as to shortages in any of the grades having been noted. We quote f.o.b. cars per short ton at Duluth docks as follows: Nut, \$7.10; egg, \$6.85; stove, \$6.85; pea, \$5.55 and buck, \$4.

## ANTHRACITE SHIPMENTS

Anthracite shipments for January of this year and last year compare as follows.

	Buck No. 1 and Larger			
	1916	1915	1916	1915
Phila. & Reading.....	952,417	661,600	1,106,899	760,757
Lehigh Valley.....	921,124	879,197	1,018,098	954,072
Central R.R. of N. J. ....	507,193	529,497	623,860	608,296
Dela., Lacka. & W. ....	714,844	491,847	860,230	575,538
Dela. & Hudson Co. ....	537,812	541,073	626,959	623,947
Pennsylvania.....	567,705	386,275	640,908	451,200
Erie. ....	576,417	489,155	666,994	577,007
N. Y. O. & W. ....	152,355	165,432	175,020	183,718
Lehigh & New Eng. ....	155,565	88,271	165,382	99,064
Total.....	5,085,432	4,232,347	5,884,350	4,833,599

Stocks at Tidewater on Jan. 31 were 413,672 tons, as compared with 559,460 tons on Dec. 31.

## NORFOLK &amp; WESTERN RY.

The following is a statement of coal handled by the N. & W. Ry. during January and the past four months in short tons:

	October	November	December	January
Pocahontas Field.....	1,720,613	1,482,015	1,387,033	1,487,189
Tug River District.....	375,743	339,154	328,558	343,516
Thacker District.....	264,619	268,299	258,980	284,135
Kenova District.....	95,438	92,587	86,724	89,459
Clinch Valley District....	142,187	118,553	123,528	131,242
Other N. & W. Territory. ....	4,636	5,277	7,127	4,547
Total N. & W. Fields.....	2,606,236	2,305,885	2,191,950	2,340,088
Williamson & Pond Creek.....	95,188	90,052	87,365	96,436
Tug River & Ky. R.R. ....	60,050	57,039	51,919	58,045
All other railroads.....	268,762	245,730	139,593	158,840
Grand total.....	3,027,236	2,698,706	2,470,827	2,653,409

## FOREIGN MARKETS

## GREAT BRITAIN

Jan. 28—The loading pressure so apparent during the last two or three weeks shows no sign of being relaxed, and there is every indication of prices remaining exceedingly strong for the next fortnight or perhaps longer. Only odd parcels are procurable in the early positions. Quotations are nominally as follows:

Best Welsh steam.....	Nominal	Best Monmouthshires....	\$8.16
Seconds.....	Nominal	Seconds.....	7.92
Seconds.....	\$7.80@8.40	Best Cardiff smalls....	4.68
Best dry coals.....	7.80@8.40	Cargo smalls.....	3.36

**Freights**—Business is on a small scale, stemming difficult, and tonnage shortage still retarding chartering. Rates are approximately as follows:

	December		Twelve Months	
To	1913	1914	1915	
Russia.....	400,315		5,998,434	3,087,805
Sweden.....	379,522	291,039	171,787	4,563,076
Norway.....	201,951	179,562	185,518	2,298,345
Denmark.....	294,685	225,520	216,165	3,034,240
Germany.....	655,841		8,952,328	5,256,765
Netherlands.....	148,598	90,634	137,915	2,018,401
Belgium.....	140,761	1,008		1,201,077
France.....	1,009,553	1,246,786	1,386,299	12,775,909</

## Coal Contracts Pending

*The purpose of this department is to diffuse accurate information of prospective purchases and prices with a view to affording equal opportunity to all, promoting market stability and inculcating sound business principles in the coal trade.*

### Supplemental Notes

*Under this heading additional or supplemental information regarding old contracts appears, together with the page number of the original notice.*

**1645—Wheeling, W. Va.**—This contract (Vol. 8, p. 870), which provides for furnishing the City Electric Light Plant with approximately 3,200 tons of mine-run coal, has not yet been closed. Address Supt. W. B. Kain, City Electric Light Plant, Wheeling, W. Va.

**1937—Columbus, Ohio**—Only one bid was received on this contract (p. 149), which provides for furnishing various of the city departments with coal during the ensuing year. The Banner Coal and Coke Co. have bid \$1.82 per ton for Hocking mine-run coal, to be delivered at the Scioto River Pumping Station, this figure being considerably higher than the previous contract. No bids were received at all for furnishing the other departments required. It is probable that the business will be readvertised. Address Dir. B. L. Bargar, Purchasing Board, Columbus, Ohio. (No. 65, Vol. 7, pp. 231, 358.)

**1948—Jackson, Mich.**—Bids will not be received on this contract (p. 150), which provides for furnishing the Consumers Power Co. with approximately 75,000 tons of nut and slack coal, until some time in March. Deliveries are made at the rate of 5,000 tons per month, except in August, September and October when 10,000 tons per month will be required. Address Mechanical Engr. H. F. Eddy, The Consumers Power Co., Jackson, Mich.

**2025—Chicago, Ill.**—Purchases on this contract (p. 233) are being confined to the open market, no contract having been awarded. Address Purchasing Agent, Chicago Coated Board Co., 420 E. North Water St., Chicago, Ill. (No. 10, Vol. 6, p. 854.)

**2234—St. George, S. I., N. Y.**—New bids have been requested on this contract (pp. 233, 317), which provides for furnishing anthracite and bituminous coal to various city departments. Address Pres. Calvin D. Van Name, Room 18, Borough Hall, St. George, S. I., N. Y.

### New Business

*Volume and page number in parentheses at the end of an item indicate where the previous announcement, bids and awards on that contract may be found.*

**2154—Chicago, Ill.**—The Troy Laundry Machinery Co. will contract about Mar. 15 for its annual fuel requirements, involving about 300 tons of Carterville No. 1 washed nut coal per month. Address Pur. Agt. J. F. Reustle, Troy Laundry Machinery Co., 23rd and La Salle St., Chicago, Ill.

**2155—Toledo, Ohio**—Permission has been requested of the City Council to negotiate a purchase of 7,000 tons of coal. Address City Purchaser George Shanks, Toledo, Ohio.

**2156—Chicago, Ill.**—Henry Schultz & Co. will contract for its annual fuel requirements, involving about 150 tons of Harrisburg screenings per month, on Mar. 1. Address Purchasing Agent, Henry Schultz & Co., 531 West Superior St., Chicago, Ill.

**2157—Hamilton, Ohio**—The American Frog and Switch Co. is receiving quotations for furnishing its annual fuel supply, involving approximately 2,500 tons of West Virginia mine-run coal. Address Engr. W. H. Rabbe, the American Frog and Switch Co., Hamilton, Ohio.

**2158—Chicago, Ill.**—The Buda Foundry Co. will contract for its annual fuel requirements, involving about one car of Illinois lump and egg coal per day, on Mar. 1. Address Purchasing Agent, the Buda Foundry Co., 80 East Jackson Blvd., Chicago, Ill. (No. 542, Vol. 7, p. 708.)

**2159—Indianapolis, Ind.**—The Van Camp Packing Co. is receiving bids for furnishing its annual fuel requirements at the Effingham, Ill., plant. About 200 tons of 6x2-in. egg and mine-run coal per month will be required. Address Pur. Agt. John Niven, the Van Camp Packing Co., Indianapolis, Ind.

**2160—Chicago, Ill.**—The Brownell Improvement Co. will contract for a portion of its requirements in the near future. The company uses about 75 tons of Illinois and Indiana coal, varying from 1½-in. to 6-in., a day for eight months in the year. It will also consider using screenings in the future. Address Purchasing Agent, Brownell Improvement Co., 133 West Washington St., Chicago, Ill.

**2161—Cincinnati, Ohio**—The contract of the City Ice Delivery Co., involving approximately 30,000 tons of mine-run and nut and slack coal, expires some time next month. Address Vice-Pres. William A. Schmidt, the City Ice Delivery Co., Cincinnati, Ohio.

**2162—Chicago, Ill.**—Alex Friend & Co. will soon contract for a portion of its annual fuel requirements, which amount to 32,000 tons. Bids will be received on Illinois screenings, egg, nut and some Pocahontas mine-run. Address Pur. Agt. Clarkson, Alex Friend & Co., 29 South La Salle St., Chicago, Ill.

**2163—Toledo, Ohio**—The Ann Arbor Railway Co. will contract for its annual fuel requirements, involving approximately 150,000 tons of mine-run coal, some time next month. Address Pur. Agt. R. J. Woods, the Ann Arbor Railway Co., Toledo, Ohio.

**2164—Chicago, Ill.**—Montgomery, Ward & Co. will be in the market soon for its annual fuel contract, involving approximately 50 tons of Illinois screenings per day. Address Pur. Agt. Wilberham, Montgomery, Ward & Co., Chicago Ave. and Larrabee St., Chicago, Ill.

**2165—Chicago, Ill.**—The Hansell-Elcock Co. will contract for its annual fuel requirements, involving approximately one car of Illinois screenings per week, on Apr. 1. Address Pur. Agt. Chandler, Hansell-Elcock Co., Archer and Normal Ave., Chicago, Ill.

**2166—Chicago, Ill.**—The Devoe & Raynolds Co. will soon be in the market for its fuel requirements, amounting to approximately 15 tons of Illinois screenings per day. Address Pur. Agt. Harrington, Devoe & Raynolds Co., 14 West Lake St., Chicago, Ill.

**2167—Chicago, Ill.**—The Patent Vulcanite Roofing Co. will contract for its annual fuel requirements, involving about three cars of Illinois and Indiana mine-run per week on Apr. 1. Address Pur. Agt. Boiseman, Patent Vulcanite Roofing Co., 2256 W. 49th St., Chicago, Ill.

**2168—Canton, Ohio**—The Metropolitan Paving Brick Co. contracts for its annual fuel supply, involving 143,500 tons of three-quarter and No. 6 coal, on Apr. 1. Deliveries are made by railroad at the rate of 500 tons per day, and the company has storage capacity for about 2,000 tons. This contract will be awarded on Apr. 1. Address Pur. Agt. H. I. Riseling, Metropolitan Paving Brick Co., Renkert Bldg., Canton, Ohio.

**2169—Albany, N. Y.**—The State Government will receive bids until 10 a.m., Apr. 20, for furnishing and delivering approximately 10,000 tons of coal for use at the State Power House, in addition to 2,500 tons of bituminous slack, and about 600 tons of anthracite grate coal, and 50 tons of either stove or chestnut for use at the other state buildings. Address Supt. William H. Storrs, Department of Public Buildings, State Capitol, Albany, N. Y. (No. 568, Vol. 7, pp. 709, 748, 796.)

**2170—Chicago, Ill.**—The King Cereal and Manufacturing Co. will contract for its annual fuel requirements, involving about 300 tons of Carterville screenings per month, on Apr. 1. Address Pur. Agt. Horner, King Cereal and Manufacturing Co., 563 W. Randolph St., Chicago, Ill.

**2171—Medford, Mass.**—The Medford Woolen Manufacturing Co. will contract for its annual fuel requirements, involving about 30 tons per month of New River coal, on Apr. 1. Deliveries are made by water, railroad and wagon, and the company has storage capacity for 150 tons. Address Pur. Agt. R. M. Lyrrell, Medford Woolen Manufacturing Co., 30 Ship Ave., Medford, Mass.

**2172—Memphis, Tenn.**—The Memphis Street Railway Co. will contract for its annual fuel requirements, involving about 4,000 tons of Kentucky pea and slack coal on Apr. 1. Deliveries are made by railroad at the rate of 125 tons per day, and the company has storage capacity for 4,000 tons. Ad-

dress Pur. Agt. R. Meuter, Memphis Street Railway Co., Memphis, Tenn.

**2173—Chicago, Ill.**—The Hotel Sherman contracts for its annual fuel requirements, involving approximately 9,000 tons of Nos. 3 and 4 washed nut coal per annum, on Apr. 1. Address Pur. Agt. Wilkenson, Hotel Sherman, 7 Clark and West Randolph St., Chicago, Ill.

**2174—Alton, Ill.**—The Alton Brick Co. contracts for its annual fuel supply, involving approximately 12,000 tons of No. 3 washed nut, and 8,000 tons of Nos. 3 and 4 mixed washed on Apr. 1. Deliveries are made by railroad at the rate of 1,600 tons per month, and the company has storage capacity for 1,000 tons. Address Secy. and Treas. Ed. Rodgers, Alton Brick Co., Alton, Ill.

**2175—Long Island City, N. Y.**—The Borough of Queens received bids until Feb. 16 for furnishing and delivering 450 gross tons of anthracite broken coal to the Queens County Court House, about 700 tons to various public buildings in Jamaica, Flushing and Far Rockaway, and about 600 tons of bituminous mine-run to be delivered at the Far Rockaway Disposal Plant. Deliveries are to be completed by Dec. 31. Address Pres. Maurice E. Connolly, Borough Hall, Long Island City, N. Y. (No. 62, Vol. 7, pp. 189, 358.)

**2176—Chicago, Ill.**—The McVoy Sheet and Tin Plate Co. will contract for its annual fuel requirements, involving approximately 200 tons of Carterville lump coal, on Mar. 15. Address Purchasing Agent, McVoy Sheet and Tin Plate Co., 344 N. Austin Ave., Chicago, Ill.

**2177—Worcester, Mass.**—The Hopeville Manufacturing Co. contracts for its annual fuel requirements, involving approximately 400 tons of bituminous, and 1,200 tons of anthracite bird's-eye, on April 1. Deliveries are made by railroad at the rate of about one car per month, and the company has storage capacity for 2,000 tons. Address Treas. Geo. A. Bigelow, Hopeville, Mfg. Co., Lutton Lane, Worcester, Mass.

**2178—Frankfort, Ind.**—Archey & Brant Coal Co. will contract for its annual requirements of retail coal on Apr. 1. The company buys Indiana lump and egg. Address Archey & Brant Coal Co., Frankfort, Ind.

**2179—Meadville, Penn.**—The Northwestern Pennsylvania Railway Co. contracts for its annual fuel requirements, involving approximately 20,000 tons of Bessemer mine-run coal, on Apr. 1. The deliveries are made by railroad at the rate of 400 cars per week. The company has practically no storage capacity. Address Pur. Agt. F. C. Yockey, Northwestern Pennsylvania Railway Co., Meadville, Penn.

**2180—Chicago, Ill.**—Adler & Oberndorf will enter on a two years' contract covering their fuel requirements, involving 7,500 tons of Illinois or Indiana mine-run coal per annum, on Apr. 1. Address Purchasing Agent, Adler & Oberndorf, Union Stock Yards, Chicago, Ill.

**2181—E. Durham, N. C.**—The Durham Cotton Manufacturing Co. will contract for its annual fuel requirements, involving approximately 3,600 tons of mine-run steam coal, on Apr. 1. Deliveries are made by railroad at the rate of 300 tons per month, and the company has a storage capacity for 500 tons. Address Purchasing Agent, Erwin Cotton Mills Co., W. Durham, N. C.

**2182—Chicago, Ill.**—The Carter White Lead Co. will contract for its annual fuel requirements, involving about 400 tons of Carterville No. 4 washed coal per month, on Apr. 1. Address Pur. Agt. J. A. Board, Carter White Lead Co., 12042 Peoria St., Chicago, Ill.

**2183—Youngstown, O.**—The Youngstown & Sharon Street Railway and Light Co. will contract for its annual fuel requirements, involving approximately 120,000 tons of gas slack coal, on Apr. 1. Deliveries are made by railroad at the rate of 10,000 tons per month, and the company has a storage capacity for 15,000 tons. Address Purchasing Agent, Youngstown & Sharon Street Railway and Light Co., 224 Belmont Ave., Youngstown, O.

**2184—New Bedford, Mass.**—The Manomet Mills will contract for its annual fuel requirements, involving approximately 16,000 tons of Pocahontas coal, on Apr. 1. Deliveries are made by team at the rate of 60 tons per day and the company has a storage capacity for 2,000 tons. Address Treasurer, Manomet Mills, Riverside Ave., New Bedford, Mass.

**2185—Chicago, Ill.**—Sears, Roebuck & Co. will contract for its annual fuel requirements, involving about 50,000 tons of Illinois screenings on Apr. 1. Address Pur. Agt. J. H. Westrich, Sears, Roebuck & Co., 925 Homan Ave., Chicago, Ill. (No. 346, Vol. 7, p. 528, 750.)

**2186—Washington, D. C.**—The Capital Traction Co. contracts for its annual fuel requirements, involving approximately 36,000 tons of coal, about Apr. 1. The company uses Big Vein Georges Creek coal and deliveries are made by canal

and railroad at the rate of about 3,000 tons per month. The company has a storage capacity for about 4,500 tons. Address Pur. Agt. J. Fleming, The Capital Traction Co., 36th and M Sts., N. W., Washington, D. C.

**2187—Alliance, Ohio.**—The Alliance Clay Products Co. contracts for its annual fuel requirements, involving 20,000 tons of Youghiogheny three-quarter coal, on Apr. 1. Deliveries are made by railroad at the rate of 1,700 tons per month and the company has a storage capacity for 500 tons. Address Pur. Agt. J. B. Wilcox, Alliance Clay Products Co., So. Mahoning St., Alliance, Ohio.

**2188—Chicago, Ill.**—The Hubbard Steel Foundry Co. will contract for its annual fuel requirements, involving 250 to 300 tons of West Virginia splint per month, on Apr. 1. Address Pur. Agt. H. F. Segenschuh, Hubbard Steel Foundry Co., 900 So. Michigan Ave., Chicago, Ill.

**2189—Slater, Mo.**—Slater Light and Water Works contracts for its annual fuel requirements, involving approximately 1,800 tons of lump coal per annum, about Apr. 1. The approximate cost per ton is \$2.50 and it is understood the business is not done on competitive bids. Address Supt. L. E. Shepherd, Slater Light and Water Works, Slater, Mo.

**2190—Chicago, Ill.**—Bunte Bros. will contract for their annual fuel requirements, involving approximately 10,000 to 15,000 tons of Pocahontas mine-run coal, on Apr. 1. Address Purchasing Agent, Bunte Bros., 722 W. Monroe St., Chicago, Ill.

**2191—Canton, Ohio.**—The Big Four Clay Co. contracts for its annual fuel requirements, involving approximately 12,000 tons of three-quarter coal on Apr. 1. Deliveries are made by railroad at the rate of one or two cars per day and the company has no storage capacity. Address Pur. Agt. G. O. French, The Big Four Clay Co., City National Bank Bldg., Canton, Ohio.

**2192—Chicago, Ill.**—Ruehl Bros. Brewing Co. will contract for its annual fuel requirements, involving 250 tons of Franklin County 2-inch screening per month on Apr. 1. Address Pur. Agt. Bartholemey, Ruehl Bros. Brewing Co., 2646 Arthington St., Chicago, Ill.

**2193—Jackson, Miss.**—The Jackson Light and Traction Co. will contract for its annual fuel requirements, involving about 18,250 tons of pea and slack coal, on Apr. 1. Deliveries are made by railroad at the rate of about one car per day and the company has a storage capacity for 800 tons. Address Purchasing Agent, Jackson Light and Traction Co., Jackson Miss.

**2194—Belding, Mich.**—The Belding Gas Works contract, involving approximately 1,500 tons of  $\frac{3}{4}$ -in. lump coal, expires on Apr. 1. Address Pur. Agt. L. A. Leonard, The Belding Gas Works, Belding, Mich.

**2195—Willoughby, O.**—The Cleveland, Painesville & Eastern R.R. contracts for its annual fuel requirements, involving 18,250 tons of slack coal, on Apr. 1. Deliveries are made by railroad at the rate of 50 tons per day, and the company has storage capacity for 650 tons. Address Pur. Agt. J. Jordan, Cleveland, Painesville & Eastern R.R., Willoughby, O.

**2196—Bristol, Conn.**—The City Council on Feb. 1 voted an appropriation of \$1,250 for making additional purchases of wood and coal for the public buildings. Address City Clk. Thos. B. Steele, City Council, Bristol, Conn.

**2197—Chicago, Ill.**—The Lake Sand Co. will contract for its annual fuel requirements, involving approximately 500 tons of Pocahontas mine-run coal, on Apr. 1. Address Pur. Agt. R. F. Smith, Lake Sand Co., 19 S. La Salle St., Chicago, Ill.

**2198—Toronto, Can.**—The Electric Power Co., Ltd. will contract for its annual fuel supply, involving about 5,000 tons, on Apr. 1. Deliveries are made by railroad at the rate of 400 tons per month, and the company has storage capacity for 2,000 tons. Address Pur. Agt. L. S. Holton, The Electric Power Co., Confederation Life Bldg., Toronto, Can.

**2199—Galesburg, Ill.**—The Purington Paving Brick Co. contracts for its annual fuel requirements, involving approximately 600 tons of Illinois mine-run coal per day, on Apr. 1. Deliveries are made by railroad. Address Purchasing Agent, The Purington Paving Brick Co., Galesburg, Ill.

**2200—Fitchburg, Mass.**—Shirreffs Worsted Co. contracts for its annual fuel requirements, involving 700 tons of anthracite bird's-eye, and 300 tons of bituminous, on Apr. 1. Deliveries are made by railroad at the rate of three cars per month, and the company has storage capacity for 400 tons. Address John Shirreffs, Shirreffs Worsted Co., Fitchburg, Mass.

**2201—Chicago, Ill.**—Chicago Malleable Castings Co. will contract for its annual fuel requirements, involving about 25,000 tons of splint coal, on Mar. 15. Address Pur. Agt. P. A.

Lewellyn, Chicago Malleable Castings Co., 120th St. and Racine Ave., Chicago, Ill.

**2202—Louisville, Ky.**—Bids will be received at the local Custom House until 2 p.m., Apr. 21, for furnishing approximately 800 tons of bituminous coal. Address Custodian Warner S. Kinkead, Custom House, Louisville, Ky.

**2203—Quechee, Vt.**—A. G. Duey Co. will contract for its annual fuel supply, involving 600 tons of bituminous, 500 tons of coke, and 70 tons of anthracite, stove and nut, on Apr. 1. Deliveries are made by railroad at the rate of one to two cars of both bituminous and coke per month, and the company has storage capacity for 500 tons. Address Secy. Geo. E. Mann, A. G. Duey Co., Quechee, Vt.

**2204—New York, N. Y.**—The Hunter College of the City of New York, received bids until 3 p.m., Feb. 17, for furnishing 260 tons of peat coal, deliveries to be concluded by Jan. 31, 1917. Address Chn. Adrian Van Sinderen, Committee of Finance, Hunter College, Park Ave. and 68th St., New York City.

**2205—Cleveland, Ohio**—The Cleveland Twist Drill Co. will soon be in the market for its annual fuel requirements, involving approximately 10,000 tons of Pittsburgh No. 8 slack coal. Deliveries are made by Pennsylvania R.R., and shipments must be in self-clearing cars. Address Pur. Agt. G. W. Kohlmatz, the Cleveland Twist Drill Co., Cleveland, Ohio.

**2206—Chicago, Ill.**—The Chicago Rawhide Manufacturing Co. will contract for its annual fuel supply, involving approximately 25 tons of Pocahontas mine-run coal per month on Apr. 1. Address Purchasing Agent, Chicago Rawhide Manufacturing Co., 1301 Elston Ave., Chicago, Ill.

**2207—Anderson, Ind.**—The National Tile Co. will contract for its annual fuel requirements, involving approximately 15,000 tons of West Virginia or Indiana mine-run coal on Mar. 31. Address Pur. Agt. L. S. Jones, the National Tile Co., Anderson, Ind.

**2208—Cleveland, Ohio**—The Otis Steel Co. will contract for its annual fuel requirements, involving approximately 36,000 tons of Pittsburgh or West Moreland County slack and 30,000 tons of mine-run, some time during March. Deliveries are made by Lake Shore & Michigan Southern or Pennsylvania R.R., and shipments may be in either hopper or gondola cars. Address Pres. George Bartol, Otis Steel Co., Leader-News Bldg., Cleveland, Ohio.

**2209—Baltimore, Md.**—The Board of Awards will receive bids until 11 a.m., Feb. 23, for furnishing approximately 13,500 tons of anthracite, and 42,000 tons of bituminous coal. The successful bidder will be required to give a bond equal in amount to the value of the contract and copies of the specifications may be obtained by sending \$5 to Water Engr. Walter E. Lee, at the City Hall. Address City Register, City Hall, Baltimore, Md. (No. 431, Vol. 7, p. 568.)

**2210—Chicago, Ill.**—Rueckheim Bros. & Eckstein will contract for their annual fuel requirements, involving about 400 tons of Pocahontas mine-run per month on Apr. 1. Address Pur. Agt. Lindemann, Rueckheim Bros. & Eckstein, Peoria, Harrison and Sangamon St., Chicago, Ill.

**2211—Webster City, Iowa**—The National Sewer Pipe Co. will contract about Apr. 1 for its annual fuel requirements, involving approximately 10,000 tons of 1 1/4-in. lump coal to be used in burning and glazing vitrified sewer pipe. Address Secy. P. W. Hearn, the National Sewer Pipe Co., Webster City, Iowa.

**2212—Sandusky, Ohio**—The American Crayon Co. will contract some time during March for its annual fuel requirements, involving about 2,500 tons of nut and slack coal. Address Secy. and Treas. A. M. Spore, the American Crayon Co., Sandusky, Ohio.

**2213—Chicago, Ill.**—The Hotel La Salle contracts for its annual fuel requirements, involving about 35 to 45 tons of Nos. 4 and 5 Illinois washed nut coal on Apr. 1. Address Pur. Agt. Bird, Hotel La Salle, La Salle and Madison St., Chicago, Ill.

**2214—Cleveland, Ohio**—The Chisholm & Moore Manufacturing Co. will receive bids during March for its annual fuel requirements, involving approximately 7,000 tons of Youghiogheny lump and 1,500 tons of slack. Deliveries may be in either hopper or gondola cars and will be made via Pennsylvania R.R. Address Secy. and Gen. Mgr. V. M. Moore, Chisholm & Moore Manufacturing Co., 5046 Lakeside Ave., N. E., Cleveland, Ohio.

**2215—Milwaukee, Wis.**—The Jos. Schlitz Brewing Co. is receiving bids for its annual fuel requirements, involving about 60,000 tons of bituminous mine-run, deliveries to be made during the season of navigation in 7,000-ton cargo lots. Quotations should be made f.o.b. vessels alongside dock, Milwaukee, and the coal must conform approximately to the

following analysis: 14,250 B.t.u.; 6% ash; 1.25% sulphur; volatile matter not to exceed 33%. Address Purchasing Department, Schlitz Brewing Co., Milwaukee, Wis.

**2216—Chicago, Ill.**—Hibbard, Spencer, Bartlett & Co. will contract for its annual fuel requirements, involving approximately 300 tons of Illinois screenings per month, on Apr. 1. Address Pur. Agt. C. J. Whipple, Hibbard, Spencer, Bartlett & Co., Chicago, Ill.

**2217—Logansport, Ind.**—The contract of the Logansport Electric Light Co. is usually let in March, and shipments begin on Sept. 1. From 15,000 to 20,000 tons of screenings are required, deliveries to be made during the ensuing year, and the privilege is reserved of demanding 1,000 tons for storage purposes at any time. Address City Clk. William Pickett, the Logansport Electric Light Co., Logansport, Ind. (No. 307, Vol. 7, p. 488.)

**2218—Ravenna, Ohio**—The Cleveland Worsted Mills Co. usually contract for its annual fuel requirements, involving approximately 8,000 tons of Ohio nut and slack coal, about Apr. 1. This plant of the company is located on the Pennsylvania R.R. Address Pur. Agt. S. H. Nash, the Cleveland Worsted Mills Co., Cleveland, Ohio.

**2219—Chicago, Ill.**—The Chicago Fuse Manufacturing Co. will contract for its annual fuel requirements, involving approximately 45 tons of Illinois mine-run coal per month, on Apr. 1. Address Purchasing Agent, Chicago Fuse Manufacturing Co., Chicago, Ill.

**2220—Detroit, Minn.**—The contract for furnishing the Water, Light and Heat Department, will be advertised for about the first of March, and the contract will be awarded on Apr. 1. Approximately 2,000 tons of Youghiogheny dock-run coal will be required. Address City Clerk, Detroit, Minn.

**2221—Youngstown, Ohio**—The Bessemer Limestone Co. usually contract for its annual fuel requirements, involving 40,000 tons of slack, 5,000 tons of mine-run, and 5,000 tons of 3/4-in. on Apr. 1. Deliveries are made in equal daily shipments, and the company has storage capacity for between 10,000 to 15,000 tons. Address Pur. Agt. C. E. Blair, the Bessemer Limestone Co., 714 Stambaugh Bldg., Youngstown, Ohio.

**2222—Chicago, Ill.**—The Corn Products Refining Co. will contract for its annual fuel requirements, involving approximately 48,000 tons per month, on Apr. 1. About 10,000 tons of anthracite are required for their eastern plants, and the balance is Illinois and Indiana screenings. The company is now purchasing screenings in 100-car lots for immediate shipments, and will require this amount from time to time. Address Pur. Agt. Pettit, Corn Products Refining Co., 213 E. Illinois St., Chicago, Ill.

**2223—Gleasondale, Mass.**—The Gleasondale Woolen Mills contract for its annual fuel requirements, involving about 1,000 tons of New River coal, on Apr. 1. Deliveries are made by railroad from Boston, and the company has storage capacity for 300 tons. Address Pur. Agt. Charles E. Roberts, Gleasondale Woolen Mills, Gleasondale, Mass.

**2224—Chicago, Ill.**—The American Cement Plaster Co. will contract for its annual fuel requirements, involving approximately one car of West Virginia screenings, and six cars of Southern Illinois screenings per week, on Apr. 1. Address Pur. Agt. J. A. Henley, American Cement Plaster Co., 105 W. Monroe St., Chicago, Ill.

**2225—Cleveland, Ohio**—The Tropical Paint and Oil Co. will contract some time in March for its annual fuel requirements, involving approximately 2,500 tons of Ohio mine-run coal. Deliveries are made in gondola equipment by way of Lake Shore & Michigan Southern R.R. Address Pur. Agt. C. W. Bark, the Tropical Paint and Oil Co., W. 70th St. and N. Y. C. tracks, Cleveland, Ohio.

**2226—Portsmouth, Ohio**—The Irving Drew Co. will contract about Apr. 1 for its annual fuel requirements, involving approximately 1,500 tons of mine-run coal. Address Treas. W. W. Gates, Jr., the Irving Drew Co., Portsmouth, Ohio.

**2227—Chicago, Ill.**—The Illinois Malleable Iron Co. will contract for its annual fuel requirements, involving approximately one and one-half cars of Indiana lump and Youghiogheny 3/4-in. lump per day, on Apr. 1. Address Pur. Agt. A. J. Schwendau, Illinois Malleable Iron Co., 1801 Diversey Blvd., Chicago, Ill.

**2228—South Park, Ohio**—The Hydraulic Pressed Brick Co. will contract some time in March for its annual fuel requirements, involving approximately 25,000 tons of Cambridge or Pittsburgh No. 8 3/4-in. coal. Deliveries are made by Baltimore & Ohio R.R. in hopper bottom cars. Address Genl. Mgr. F. H. Chapin, the Hydraulic Pressed Brick Co., Schofield Bldg., Cleveland, Ohio.

**2229—Chicago, Ill.**—The Goetz Co. will contract for its annual fuel supply, involving one and one-half cars of Illinois

washed nut coal per month, on Apr. 1. Address Pur. Agt. A. W. Goetz, Goetz Co., 1802 Clybourn Ave., Chicago, Ill.

**2230—Cleveland, Ohio.**—The American Sheet and Tin Plate Co. will contract for its annual fuel requirements, involving approximately 24,000 tons of Pittsburgh or Pittsburgh No. 8 slack, and 6,000 tons of mine-run, some time in March. Deliveries are made by Pennsylvania R.R. and in hopper bottom cars. Address Pur. Agt. M. S. Dennis, the American Sheet & Tin Plate Co., Frick Bldg., Pittsburgh, Penn.

**2231—New York, N. Y.**—Bids will be received by the Department of Water Supply, Gas and Electricity until 2 p.m., Feb. 23, for furnishing, delivering, storing and trimming No. 1 buckwheat and mine-run coal. Deliveries are to be completed before Apr. 1 of the current year. Address Commissioner William Williams, Dept. of Water Supply, Gas and Electricity, Room 2351, Municipal Bldg., New York, N. Y.

**2232—West Pullman, Chicago, Ill.**—The Chicago Malleable Castings Co. will contract for its annual fuel requirements, involving about 25,000 to 30,000 tons of 4-in. lump coal, to be delivered in approximately equal monthly proportions, on Mar. 31. Address Vice-Pres. and Treas. J. T. Llewellyn, Chicago Malleable Castings Co., West Pullman, Chicago, Ill.

**2233—Cleveland, Ohio.**—The Cleveland Worsted Mills Co. will contract for its annual fuel requirements, involving approximately 16,000 tons of Ohio slack coal, on Apr. 1. Address Pur. Agt. S. H. Nash, Cleveland Worsted Mills Co., Cleveland, Ohio.

### Contracts Awarded

Note—Successful bidders are noted in **bold face** type.

**1875—Wilmington, Del.**—This contract (p. 107), calling for annual tonnage of broken coal amounting to 400 tons for James Oberly, brick manufacturer, has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the three months beginning Jan. 1, 1916. Address James Oberly, Wilmington, Del.

**1876—Philadelphia, Penn.**—This contract (Vol. 9, p. 107), has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the quarter ending Apr. 1, 1916. Address Purchasing Agent, Nazel Engineering & Machine Works, 5th and Luzerne St., Philadelphia, Penn.

**1942—Cincinnati, Ohio.**—This contract (p. 149), which provides for furnishing and delivering approximately 2,000 tons of coal for use at the Western Hills Pumping Station and the filtration plant has been awarded to the **Reliance Coal and Coke Co.**, at \$3,585 for the first item, and \$1,638 for the second. Address Assistant Secy. C. A. Zech, Public Service Dept., City Hall, Cincinnati, Ohio. (No. 1200, Vol. 8, pp. 244, 410.)

**1944—Philadelphia, Penn.**—This contract (p. 149), calling for 1,000 tons of buckwheat annually for John Wilde & Bro., has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the three months ending Mar. 31, 1916. Address Purchasing Agent, John Wilde & Bro., Wissahickon, Philadelphia, Penn.

**1936—Homestead, Penn.**—This contract (p. 193), which provides for furnishing coal for the city garbage plant, has been awarded to **G. S. Winginton** at \$6.25 per hundred bushels for mine-run coal. Other bids received on this business were: Frank Strong, \$6.50; W. V. Noble, \$6.50; John Davis, \$6.75. Address Borough Clk. A. I. Ritchie, Homestead, Penn.

**2009—Cadiz, O.**—This contract (p. 194), which provides for furnishing the Children's Home with coal during the year, has been awarded to **Robert Anderson** at 7c. per bu. for lump coal, and 5c. per bu. for slack. These prices include cost of delivery to the Children's Home. Address Supt. E. E. Webb, Harrison County Children's Home, Cadiz, O.

**2020—Philadelphia, Penn.**—This contract (p. 233), which provides for furnishing Girard College with approximately 3,000 tons of anthracite buckwheat coal, deliveries to be completed by Mar. 31, has been awarded to the **Geo. B. Newton Coal Co.** Address Steward, Frank O. Zesinger, Girard College, Philadelphia, Penn.

**2039—Portland, Mich.**—It is understood that this contract (p. 234), which provides for furnishing the Ramsey-Alton Manufacturing Co. with several hundred tons of three-quarter steam lump coal, has been concluded with the Detroit office of the **West Virginia Pocahontas Coal Sales Corporation**. Address Treas. B. D. Smith, The Ramsey-Alton Mfg. Co., Port-land, Mich.

**2041—New York, N. Y.**—Bids on this contract (pp. 234, 317), calling for 4,750 tons of anthracite and 800 tons of mine-run for five city departments were as follows: **ARMORY BOARD**, 590 tons of buckwheat No. 1 divided into nine parcels. **N. L. Stokes** bid \$4.85 on each parcel. **Scranton & Wyoming Coal Co.**, \$4.45 per ton on first six parcels, \$4.50 on seventh and \$4.65 on eighth and ninth parcels. **O. H. Perry & Son**,

\$5.25 on first six parcels; **W. J. Shea**, \$4.79 each; **Gavin Rowe**, \$5.48 each, and **Penn Fuel Co.**, \$4.40 each. **CORRECTION DEPARTMENT** requirements consisted of 150 tons of stove coal. **Scranton & Wyoming Coal Co.** bid \$6.10 per ton; **Penn Fuel Co.**, \$7, and **Pattison & Bowns** \$5.93.

	Charities Dept., Mine-Run	Health Dept. Buck. No. 1
Tons	800	1,000
Scranton & Wyoming Coal Co.	\$3.95	\$4.45
Whitney & Kemmerer	3.47	4.34
Penn Fuel Co.	4.00	4.40
E. Nicoll & Co.	3.66	...
Gavin Rowe	4.27	...
Pattison & Bowns	3.97	4.57
H. A. Lineweaver & Co.	3.99	...
Dexter & Carpenter	4.45	...
Blaine Mining Co.	3.90	...
A. F. Hill & Co.	3.72	...
Geo. D. Harris & Co.	3.45	...
N. L. Stokes	...	4.60
G. W. Seiler	...	5.75
O. H. Perry & Son	...	4.80

On a third lot of 1,000 tons of buckwheat No. 1 for Health Department, Scranton & Wyoming Coal Co. bid \$5.10 per ton; Bacon Coal Co., \$5.40; S. Tuttle's Son & Co., \$5.14, and John F. Schmadeke, Inc., \$5.15. On 125 tons of stove coal and 250 tons of egg coal for the Department of Charities, Scranton & Wyoming Coal Co. bid \$7 each; John E. Donovan, \$7.38 each and Joseph Johnson's Sons, \$7.43. Address Director F. R. Leach, Central Purchasing Committee, Room 1230, Municipal Bldg., New York, N. Y.

**2143—Chicago, Ill.**—The contract of the **Illinois Vinegar Mfg. Co.** (p. 319), involving approximately two cars of Illinois screenings per day, has been covered until Apr. 1, 1917. Address Purchasing Agent, The Illinois Vinegar Mfg. Co., 2612 W. 19th St., Chicago, Ill.

### Contract Notes

**McAlester, Okla.**—Special train of 25 cars of coal was rushed forward from this district to meet a fuel famine in Kansas City. The train made the run in 24 hours.

**Indianapolis, Ind.**—The Van Camp Packing Co. have contracted with the **Lumaghi Coal Co.** to furnish its Effingham, Ill., factory with 700 tons of 6x2-in. egg coal for storage purposes.

**Chicago, Ill.**—W. H. Hutchinson & Son will purchase their requirements, involving about 100 tons of Pocahontas coal in the open market. Address Pur. Agt. Snyder, W. H. Hutchinson & Son, 319 S. Desplaines St., Chicago, Ill.

**St. Louis, Mo.**—The Lumaghi Coal Co. has contracted for the entire tonnage of the St. Ellen mine near O'Fallon, Ill., during February and March. The mine is now producing about 1,000 tons per day, which will shortly be increased to 1,500 tons.

**Chicago, Ill.**—The Star & Crescent Milling Co. is in the market for approximately 8,000 tons of central Illinois lump and egg coal for immediate shipment. Address Pur. Agt. Wagner, Star & Crescent Milling Co., 160 W. Jackson Blvd., Chicago, Ill.

**Hamilton, Ohio.**—The Beckett Paper Co. has extended its contract with the **Wyatt Coal Co.** to cover shipments of 20,000 tons of West Virginia nut and slack coal between now and Aug. 1, 1917. Address Pres. T. Beckett, The Beckett Paper Co., Hamilton, Ohio.

**New Albany, Ind.**—The Goetz Pressed Brick Co. is buying its requirements at \$1.05 per ton for Indiana mine-run coal f.o.b. the mines (p. 320). The coal takes a 50c. freight rate to their plant. Address Pur. Agt. John Goetz, The Goetz Pressed Brick Co., New Albany, Ind.

**Worden, Ill.**—The Keren-Donnewald Coal Co. is storing approximately 15,000 tons of coal from 4 in. and smaller in size at this place. At three other points the company has 30,000 tons of screenings in concrete basins under water, and expects by Apr. 1 to have 100,000 tons in storage to apply on their contract with the Illinois Traction Co.

**St. Louis, Mo.**—The Missouri, Kansas & Texas Railroad Co. has contracted with the **Southern Coal, Coke and Mining Co.** for 1,000 cars of Standard of Intermediate grade of 1½-in. lump coal for delivery before Mar. 31. The company is also in the market for an additional 1,000 cars of Illinois 1½-in. or 2-in. lump for shipment during March and February. Address Fuel Agt. J. H. Hibben, Parsons, Kan.

**Detroit, Mich.**—The Detroit & Cleveland Navigation Co. has awarded the Chicago office of **Castner, Curran & Bullitt** a contract for approximately 1,000 tons of Pocahontas mine-run for delivery at Toledo. This tonnage is to apply only on the Makinaw division, the remainder of the company's requirements being supplied on a seven-year contract, which has four years to run yet. Address Vice-Pres. and Gen. Mgr., A. A. Schantz, Detroit & Cleveland Navigation Co., Detroit, Mich.